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COMMONWEALTH BUREAU OF ANIMAL HEALTH

THE

VETERINARY BULLETIN

Vol. 27] August, 1957 [No. 8

DISEASES CAUSED BY BACTERIA AND FUNGI

BENITO, M. & BORREL, A.-J. (1957). Nouvelle étude sur l'agent causal de la "maladie des abcès du mouton et de la chèvre". **[Study of the causal agent of abscesses in sheep and goat:** *Micrococcus pyogenes ovis.***]**—*Rev. Méd. vét.* **108,** 101-118. [English summary.] **2285**

On the basis of detailed *in vitro* and *in vivo* studies, the authors consider the causal organism of abscesses in sheep and goats to be a specific entity, to which they give the name *Micrococcus pyogenes ovis*.—H. SCOTT MCTAGGART.

DE FREITAS, D. C. (1955). Observações sôbre o isolamento do *Streptococcus equi* de material contaminado. **[Technique of isolating *Str. equi* from contaminated material.]**—*Rev. Fac. Med. vet., S. Paulo* **5,** 339-345. [English summary.] **2286**

Nasal material from 209 horses was sown on "SF Medium (Difco B315)". There was no growth of *Str. equi* from any of the samples; 7 cultures of *Str. zooepidemicus* were obtained; *Str. viridans* was present in practically all cases. Comparative tests were then made with 193 samples on 3 liquid media: "SF Medium"; a medium described by Lacerda & de Freitas; and glucose broth. Good results were obtained on the second of these media. The negative results on "SF Medium" are attributed to a rapid change of pH due to luxuriant growth of *Str. viridans* which is normally present in horses' nostrils.—T.E.G.R.

STRELKOV, N. M. & POLISHCHUK, P. K. (1956). **[Trial of a vaccine against strangles.]**—*Trud. mosk. vet. Akad.* **12,** *pp.* 54-61. [In Russian.] **2287**

Formolized aluminium hydroxide vaccine was prepared from 13 strains of *Str. equi*, grown on a medium consisting of equal parts of meat extract and peptone with 0·5% glucose and 0·3% sodium citrate (pH 7·6). The conc. of formaldehyde in the vaccine was 0·02%. Two doses, each of 3–5 ml., were administered s/c at an interval of 12–14 days. 179 horses in infected or exposed stables were inoculated and 183 horses in the same stables were not inoculated. Within 4 months after inoculation there were 18 mild and 7 typical cases in inoculated horses. In the controls there were 23 mild, 21 typical and 14 severe cases. A second batch of vaccine was prepared by the same method: strangles occurred in 9 out of 189 inoculated horses and in 34 out of 153 uninoculated controls. Further trials of the vaccine were necessary.—R.M.

FOLEY, E. J. (1957). **Studies on an anti-inflammatory antibiotic udder infusion preparation for the treatment of bovine mastitis.**—*Vet. Med.* **52,** 230-234 & 251. [Abst. from author's summary.] **2288**

Both prednisone and prednisone acetate had a marked anti-inflammatory effect when instilled into infected udders or those irritated by the infusion of saline. Products containing these steroids together with penicillin and streptomycin act more quickly than those containing antibiotics alone.

RAIBAUD, P. & CAULET, M. (1957). Les streptocoques dominants dans le tube digestif du porc adulte. **[Dominant streptococci in the digestive tract of the adult pig.]**—*C. R. Acad. Sci., Paris* **244,** 1291-1293. **2289**

The dominant streptococcus was *Str. bovis*. *Str. faecalis* was of lesser importance.—R.M.

WIŚNIOWSKI, J. (1957). Odczyn hemolityczny w rozpoznaniu gruźlicy u bydła. **[The haemolytic reaction in the diagnosis of TB. in cattle.]**—*Méd. vét., Varsovie* **13,** 142-145. [In Polish.] **2290**

Using a modification of the Middlebrook-Dubos technique, W. compared the results of serological examinations with the P.M. findings. In 101 cattle in which no lesions of TB. were found on P.M. examination, the results of sero-

logical tests were negative in every case. 225 cattle with lesions of TB. were divided into 7 groups, according to the extent of the lesions; the positive results varied from 9% in cases with localized calcified lesions in lymph nodes to 96·2% in cases of generalized TB. W. suggests that in order to control bovine TB. in Poland the infected animals should be dealt with according to the titre of the haemolytic reaction, which is a quantitative test, whereas the tuberculin test is qualitative one. As a result of an experiment involving 63 and 20 cows respectively, W. is of the opinion that neither the tuberculin test nor vaccination with *Br. abortus* Strain 19 can influence the results of the Middlebrook-Dubos reaction, which appears to be sufficiently specific to be of practical importance in control of bovine TB. in Poland, where eradication of all tuberculin reactors is impracticable for economical reasons.—M. GITTER.

ROBINSON, E. M. (1956). **Studies on the haemagglutination reaction.**—*J. S. Afr. vet. med. Ass.* **27,** 107-110. **2291**

Ten cattle were inoculated with tuberculin, 5 i/d with 0·1 ml., and 5 s/c with 5 ml. All had proved negative to the haemagglutination test 10 days previously, though 2 had reacted in a dilution of 1 : 4, the positive titre being taken as 1 : 8. After 18 days 3 animals reacted at 1 : 16. A month later 2 still reacted; these had received 5 ml. of tuberculin; but the third, which had received 0.1 ml., no longer reacted.

It was found that corpuscles from different sheep give uniform results .

Inactivation of sera at 60°C. reduced a positive reaction in one case from 1 : 64 to 1 : 16 and in another from 1 : 32 to 1 : 16. Inactivation at 62°C. for half an hour destroyed completely the power of the sera to react.

Slight haemolysis in sera did not affect the reaction but marked haemolysis reduced it greatly.

It was found that equine corpuscles could be substituted for ovine, but that bovine and caprine were of little value. Avian corpuscles gave good results but were inclined to give non-specific haemagglutination. Equine corpuscles appeared liable to give non-specific reactions with normal equine sera.

In tests with sera from different species, using sheep erythrocytes, of 11 normal sheep sera 2 gave positive reactions, of 10 normal goat sera one gave a positive reaction, and of 10 normal fowl sera 3 gave a positive reaction.

Cattle sera strongly positive to the agglutination test for *Brucella abortus* infection did not as a rule react to the haemagglutination test.

Attempts to differentiate the type of *Mycobact. tuberculosis* infection by using human, bovine or avian antigens were unsatisfactory.

It was concluded from extensive tests in cattle reacting to the tuberculin test that the haemagglutination test is unreliable.—M.G.G.

AWAD, F. I. & MAHMOUD, A. H. (1957). **The single intradermal comparative tuberculin test in the Egyptian buffalo.**—*Vet. Rec.* **69,** 133. **2292**

The i/d comparative tuberculin test was carried out on 43 adult and 4 immature buffaloes. Twelve adult animals were judged to be positive, in all of which the reactions to mammalian tuberculin were hot, oedematous and painful. P.M. examination of the 12 animals corroborated the results of the test.—M.G.G.

MEUSZTŃSKI, S. (1957). Gruźlica norek. **[TB. in mink.]**—*Méd. vét., Varsovie* **13,** 79-80. [In Polish.] **2293**

An account of the disease in a mink, 3 months old, with P.M. and bacteriological findings. The infection was due to a bovine type organism and was traced to feeding of condemned meat. Three months after the animal's death 2 adult males had shown marked enlargement of cervical lymph nodes and subsequently TB. was diagnosed. M. is of the opinion that, owing to feeding of condemned meat to mink, TB. in these animals is more common than is generally accepted.—M. GITTER.

POSTLETHWAIT, R. W., WILSON, J. R., SALEM, M. H., GROSSKREUTZ, D. C., SEALY, W. C. & SMITH, D. T. (1957). **Experimental production of tuberculous pericarditis.**—*Proc. Soc. exp. Biol., N.Y.* **94,** 617-619. [Authors' summary copied *verbatim.*] **2294**

Tuberculous pericarditis was produced in sensitized rabbits by the intrapericardial injection of live bovine tubercle bacilli.

SHEA, J. D. & MORGAN, H. R. (1957). **Delayed hypersensitivity *in vitro*. I. Effects of tuberculoproteins on tissue from sensitive guinea pigs.**]—*Proc. Soc. exp. Biol., N.Y.* **94,** 436-438. [Authors' summary modified.] **2295**

The cytotoxicity of 3 tuberculoproteins, PPD. T(NY), and C, for tuberculin-sensitive macrophages was compared in tissue culture. All three had cytotoxic properties. No differences were observed between the effects of the tuberculoproteins at any one concentration. Each had an observable cytotoxic and inhibitory

action on tuberculin-sensitive splenic macrophages at the low concentration of 1 μg./ml., but none at 0·1 μg./ml. Skin tests in sensitized g. pigs gave similar results.

SCHNEIDER, E. (1956). Vergleichende Untersuchungen über die Wirksamkeit verdünnter Geflügeltuberkuline. **[Comparative research on the efficacy of diluted avian tuberculins.]** —*Inaug. Diss., Munich* pp. 35. **2296**

Using 100%, 50%, 25%, 10%, and 1% tuberculins, S. performed 3 intradermal tests at intervals of 4 weeks in the wattles of each of 20 fowls experimentally infected with TB., 100 fowls taken from infected flocks, and 8 healthy controls. The results with the 100% and 50% tuberculins were almost identical. One healthy fowl gave a doubtful reaction to the 100% tuberculin. With increasing dilutions the results became less reliable and the reactions weaker. S. concluded that 50% is the optimum dilution of tuberculin for diagnosing TB. in fowls without creating non-specific reactions in healthy birds. —M.G.G.

SHEPARD, C. C. (1957). **Growth characteristics of tubercle bacilli and certain other mycobacteria in HeLa cells.**—*J. exp. Med.* **105,** 39-48. [Author's summary modified.] **2297**

All the species of *Mycobacterium* studied were phagocytosed by HeLa cells in tissue culture media containing horse serum and many of them proceeded to grow. Fully virulent strains filled much of the cytoplasm in a few days and formed characteristic cords. Less virulent strains—R1Rv, BCG, H37Ra and R1Ra —grew less rapidly in the order given, and in characteristic patterns. The growth rate of 6 isoniazid-resistant strains was similar to that of fully virulent ones. Of the "rapidly growing" species *M. fortuitum* grew in cells while *M. phlei* and *M. smegmatis* did not. *M. balnei, M. marinum* and *M. platypoeclius* whose optimal temperature is below 37°C., grew rapidly, especially at 31° to 35°C. It is considered that the growth patterns of the organisms in HeLa form a basis for differentiation.

CHANDLER, R. L. (1956). **Laboratory aids to the diagnosis of Johne's disease.**—*N. Z. vet. J.* **4,** 121-125. **2298**

The diagnostic methods reviewed in this paper are:— microscopic and bacteriological examination of the faeces and of smears from the ileo-caecal region; johnin and other allergic tests; serological tests—haemagglutination, c.f. test and micro c.f. test; combined johnin and c.f. tests. The c.f. test and allergic tests for the diagnosis of infection in animals vaccinated against Johne's disease are discussed. In the case of sheep, examination of the faeces and of ileo-caecal specimens are more reliable than in the case of cattle and the micro c.f. test is considered to be the best serological test available. —T.E.G.R.

HARDING, H. P. (1957). **The detection of *M. johnei* in sections by fluorescent examination.** —*J. comp. Path.* **67,** 180-185. [Author's conclusions slightly modified.] **2299**

Fluorescent microscopy (F.L.M.) of sections was markedly superior to the Ziehl-Neelsen method (Z.N.) for detecting small numbers of *M. johnei* in the tissues of experimentally infected goats. F.L.M. and Z.N. agreed in 62 cases, F.L.M. was positive in 36 cases which were negative by Z.N., and in no case was Z.N. positive and F.L.M. negative. In most organs F.L.M. gave more positive results than did cultural methods. There was agreement in 53 cases, cutures were positive and F.L.M. negative in 4, and cultures were negative and F.L.M. positive in 14.

BÜRGENER, K. (1955). Die Empfindlichkeit des Corynebacterium pseudotuberculosis gegen Antibiotika und Sulfonamide (incl. des Sulfons Tibatin). **[Sensitivity of *C. ovis* to antibiotics and sulphonamides.]** — *Inaug. Diss., Giessen* pp. 31. **2300**

Plate tests and dilution tests of the effect of aureomycin, penicillin, streptomycin sulphate, and various sulphonamides on ten strains of *Corynebacterium ovis* revealed that the organism is sensitive to these preparations, particularly penicillin, streptomycin, and "Supronal". —M.G.G.

DIMITRIJEVIĆ, V. (1956). **[The epidemiology of swine erysipelas.]**—*Acta vet., Belgrade* **6,** 67-74. [In Serbian. Abst. from French summary.] **2301**

Bacteriological examination and inoculation into pigeons and mice of material from the tonsils and ileocaecal valves of 1007 pigs revealed that 62 were healthy carriers of the saprophytic form of *Erysipelothrix rhusiopathiae*. The pH of the soil in various localities where the pigs were kept was about 6·65, which would give the free organism a life of not more than 30 days. It was demonstrated that bad feeding and management could provoke the disease in healthy carriers. It was concluded that swine erysipelas is not to be regarded as an endemic disease in the region investigated, because of the unfavourable pH of the soil.—M.G.G.

DIPLOCK, P. T. (1957). **Ovine listerial abortion.** —*Aust. vet. J.* **33,** 68-70. [Abst. from author's summary.] **2302**

An outbreak of abortion in a flock of 180 Merino ewes resulted in a 16% loss of lambs. *Erysipelothrix* (*Listeria*) *monocytogenes* was isolated in pure culture from one of the aborted foetuses. D. discussed the literature and the possible public health significance.

MADEYSKI, S., NAWROCKI, J. & SZAFLARSKI, J. (1957). Serowaciejące zapalenie węzłów chłonnych u owiec wywołane przez *Pasteurella multocida*. [*Pasteurella multocida* **as cause of caseous lymphadenitis in sheep.**]—*Méd. vét., Varsovie* **13,** 75-77. [In Polish. English and Russian summaries.] **2303**

A description of an enzootic disease of sheep characterized by caseous lymphadenitis affecting mostly lambs over 6 weeks of age, but rarely adults, and occurring in late spring and autumn. The submandibular, superficial cervical and prescapular lymph nodes are most often affected but on occasion other lymph nodes and even the testes. *Pasteurella septica* was recovered from the lesions. The incubation period was about 6 weeks, and with early diagnosis and treatment the prognosis is good. The recommended treatment consists of incision and curetting of the affected lymph node and administration of streptomycin [route not stated] in two 0·5 g. doses for 2–3 days.—M. GITTER.

WINTER, H. & O'CONNER, R. F. (1957). **Mastitis and generalised lesions in a cow produced by** *Pseudomonas pyocyanea*.—*Aust. vet. J.* **33,** 83-87. [Author's summary modified.] **2304**

A cow which had recovered from ephemeral fever (three-day fever) developed mastitis and died four days later. P.M. examination confirmed the clin. diagnosis of mastitis and revealed also peritonitis, nephritis, pleuritis, pericarditis and pneumonia. Pure cultures of *Ps. pyocyanea* were recovered from the mammary gland, milk and lung. When tested by the disc method the organism was completely resistant to penicillin, streptomycin, chloramphenicol, oxytetracycline and tetracycline, but was slightly inhibited by "Hibitane". A dose of 0·00004 ml. of a 24-hour broth culture given i/p killed the majority of mice within 48 hours. The organism proved considerably more pathogenic than 4 strains of *Ps. pyocyanea* collected at random from various animals, while 2 strains of *Ps. fluorescens* collected from the soil were not pathogenic. Most strains of *Ps. pyocyanea* have low virulence, but this case and a review of the literature indicate that occasional strains are highly pathogenic and may produce generalized disease in a variety of species.

FLAMM, H. (1957). Klebsiella-Enzootie in einer Mäusezucht. [**Klebsiella endemic in a mouse breeding establishment.**]—*Schweiz. Z. allg. Path.* **20,** 23-27. [English and French summaries.] **2305**

Throat abscesses and adenitis of the supraclavicular lymph nodes were caused by *Klebsiella pneumoniae* (Friedländer's bacillus). —R.M.

ZAPF, K. (1957). Untersuchungen zum Problem des Bakterienzellkerns penicillinbeeinflusster *Coli*-Bakterien. [**The cell nucleus of** *E. coli* **under the influence of penicillin.**]—*Zbl. Bakt. I. (Orig.)* **167,** 565-583. [English, French and Russian summaries. Abst. from English summary.] **2306**

Morphological and structural changes of *E. coli* under the influence of penicillin depended on the concentration of the antibiotic and the length of its action. Staining of the nuclei and the action of enzymes revealed that in pleomorphic forms the deviation of the nuclei from the linear arrangement depends on the quantity and distribution of the cytoplasm. Electron microscopic examination of *E. coli* grown on agar containing 5–25 i.u. of penicillin/ml. revealed in the area of the nuclei zones of irregular shape that were easily penetrated by the electrons. In ultra-thin sections nuclei situated in the cytoplasm without being demarcated by a membrane contained different structures: glomerate threads and others traversing the entire section. Binary fission and chromosome-like loops were observed also.

GOETZ, O. (1956). Die Wirkung von Erythromycin in Kombination mit anderen Antibiotica auf Escherichia coli. [**Action of erythromycin in combination with other antibiotics on** *E. coli*.]—*Klin. Wschr.* **34,** 479-481. **2307**

The action of erythromycin on *E. coli in vitro* was potentiated by the addition of streptomycin; the combination was bactericidal, whereas combinations of erythromycin with chloramphenicol or oxytetracycline were only bacteriostatic.—R.M.

AMOS, H. & VOLLMAYER, E. (1957). **Effect of pentamidine on the growth of** *Escherichia coli*.—*J. Bact.* **73,** 172-177. [Authors' summary slightly modified.] **2308**

The growth in simple medium of *E. coli* Strain K-12 was inhibited by pentamidine. This inhibition was overcome by glutamic acid or α-

ketoglutaric acid in a competitive manner. A "sparing" of glutamic acid in the suppression of inhibition could be demonstrated with combinations of isoleucine and valine. Transamination in dried cells between glutamic acid and α-ketovaline was inhibited by pentamidine.

REES, T. A. (1957). **The mucus antigens of *Escherichia coli*.**—*Brit. vet. J.* **113,** 171-175. [Author's summary modified.] **2309**

At least two antigenic substances were demonstrable in the mucus secreted by selected strains of *E. coli*: one, non-specific and probably present in all strains, appeared to correspond to the "M" or mucus antigen described by Henriksen [*V.B.* **20,** 2989], the other, specific to individual strains, was probably identical with the surface antigens. Possibly small somatic and flagellar elements might also be present.

ATKINSON, N. (1956). **The occurrence of Salmonella types in Australia. XI. Types found among 3,340 strains.**—*Aust. J. exp. Biol. med. Sci.* **34,** 369-376. **2310**

Fifty-nine types were found. The commonest types were *S. typhi-murium, S. bovis-morbificans, S. cholerae-suis, S. derby, S. newport, S. anatum,* and *S. adelaide,* in that order. 96% of strains were in groups, B, C, E, or were *S. adelaide*.—K. G. JOHNSTON.

KAMPELMACHER, E. H. (1957). Über Vorkommen und Isolierung von Salmonellen bei normalen Schlachtrindern in den Niederlanden. **[Occurrence and isolation of salmonella among normal slaughter cattle in the Netherlands.]** —*Zbl. VetMed.* **4,** 198-204. [English, French and Spanish summaries. English summary slightly modified.] **2311**

Bacteriological examination of 1,600 normal slaughter cattle yielded salmonella from 9 animals, *S. dublin* from 4 and *S. bareilly* from 5. They were isolated 5 times from the liver, 9 times from the bile and on 3 occasions from the hepatic lymph nodes. Müller's medium proved particularly suitable, especially for isolation from the bile. Of 3 solid media, brilliant green phenol red, endo-agar and SS-agar, the first gave the best results.

KAFEL, S. (1957). Uwagi do projektu zmiany urzędowej oceny mięsa świń przy salmonelozie. **[Salmonella in infected pig carcasses; suggested alteration of existing meat regulations in Poland.]**—*Méd. vét., Varsovie* **13,** 16-21. [In Polish. English and Russian summaries.] **2312**

K. examined bacteriologically 16,407 pig carcasses. Where *Salmonella* was recovered from the internal organs, it failed to invade the skeletal muscles for 48 hours after slaughter when the carcass was kept at 4°C. When at slaughter *Salmonella* was isolated from the skeletal muscles and the carcass refrigerated for 48 hours at 4°C., the organism could not be found on repeated examination. When, however, *Salmonella* was found in the carcass lymph nodes it could invade the muscle tissue even though the carcass was kept for 48 hours at 4°C. K. suggests that the present meat regulations in Poland, which demand total condemnation of a carcass whenever *Salmonella* is recovered, should be altered.—M. GITTER.

ATKINSON, N. (1956). **Lysogenicity and lysis patterns in the salmonellas. IX. The indicator strains of the bacteriophage groups of *S. bovis-morbificans*.**—*Aust. J. exp. Biol. med. Sci.* **34,** 361-368. **2313**

This is an account of the investigation of five indicator strains of *S. bovis-morbificans*. The phage types carried by each were determined.—K. G. JOHNSTON.

WINTER, H. & O'CONNER, R. F. (1957). ***Salmonella birkenhead* from a kangaroo.**—*Aust. vet. J.* **33,** 67. **2314**

S. birkenhead was isolated from the bile of a kangaroo (*Megaleia rufa*).

—R. I. SOMMERVILLE.

MEYNELL, G. G. (1957). **The applicability of the hypothesis of independent action to fatal infections in mice given *Salmonella typhimurium* by mouth.**—*J. gen. Microbiol.* **16,** 396-404. [Author's summary modified.] **2315**

Mice were given by mouth a suspension containing equal numbers of streptomycin-sensitive and streptomycin-resistant variants of *S. typhimurium* . They were of equal virulence but the resistant grew more slowly than the sensitive variant. The LD_{50} dose contained about 5×10^5 bacteria. Heart blood from mice dying from many LD_{50} doses nearly always contained a large excess of the sensitive variant, but blood from mice dying from less than one LD_{50} dose contained either or both variants. The appearance of the resistant variant alone in the latter mice suggests strongly that the fatal infections were initiated by a very small number of organisms or possibly by one organism. It is therefore concluded that the organisms were acting independently, that any bacterium which enters the tissues from the gut can initiate a fatal infection and that the probability of such an entry determines the probability of a fatal infection.

SCHÜRMANN, E. & GREUEL, E. (1957). Zur Frühdiagnose der Kükenruhr. **[Early diagnosis of bacillary white diarrhoea in chicks.]** —*Dtsch. tierärztl. Wschr.* **64,** 58-61. **2316**

Schürmann [*V.B.* **26,** 740] reported in 1955 on the possibility of diagnosing pullorum disease in four-day-old chicks by the rapid agglutination test. The present experiments showed that four-day-old chicks, negative to the rapid agglutination test, could be infected by administering *S. pullorum per os*. Positive serological reactions were obtained usually 5 to 8 but not more than 14 days later. It was further shown that this early test could be utilized in practice with absolute accuracy and great efficiency (100 chicks per hour). Early diagnosis assists in the elimination of carriers.—W. G. SILLER.

GAUGUSCH, Z. & KAFEL, S. (1956). Badania nad rozmieszczeniem pałeczek *S. typhimurium* w mięśniach in narządach wewnętrznych ptactwa wodnego. **[Incidence of *S. typhimurium* in muscles and organs of ducks and geese.]**—*Roczn. Nauk rol. Ser. E.* **67,** 489-502. [In Polish. English and Russian summaries.] **2317**

This work was based on investigations of natural outbreaks and experimental transmissions. Salmonellosis of ducks and geese in Poland is mostly due to *S. typhi-murium;* it is a typical disease conditioned by environment and to a great extent induced by dietary deficiency. *S. typhi-murium* was never found in the muscles even when present in the internal organs of a bird. 300 ducklings known to be infected were placed under optimal conditions of management and feeding; when they were killed and examined bacteriologically after 8–10 weeks not a single case of salmonellosis was found.

—M. GITTER.

LEWICKA, H. & EISELE, T. (1957). Szczepienia kacząt jednodniowych. **[Immunization of day-old ducklings against salmonellosis.]**—*Méd. vét., Varsovie* **13,** 82. [In Polish.] **2318**

An experimental immunization with bovine antisalmonella serum was carried out on a farm where the disease was endemic and where losses had reached 80%. 2,147 ducklings were given 0·5 ml. serum i/p and 2,098 (97·7%) were successfully reared. In a control group of 94 not given serum 50% died. This year serum is being used on other duck farms where salmonellosis is endemic.—M. GITTER.

ANON. (1957). **Report of a Commission on bovine brucellosis in the Netherlands, and its control.**—*Tijdschr. Diergeneesk.* **82,** 152-176. [In Dutch.] **2319**

The Commission on Bovine Brucellosis was composed of 13 veterinarians from the Veterinary Faculty, the Provincial Animal Health Services, and private practice, under the Chairmanship of A. v. d. Schaaf. Milk ring tests on 2,752,000 cows in 20,900 herds during 1955 revealed that 63% of herds were free from brucellosis. Of the remainder, the proportion of infected animals in each herd varied enormously, but averaged 5–10% of the total number of cattle aged two years or more. From the milk and meat prices of 1956, it was estimated that the annual loss from bovine brucellosis in the Netherlands was 15–30 million guilders (approx. £1·4–2·8 million). The Commission formulated a scheme for the control of the disease, based on regular examination of herds by the milk ring test, supplemented by tests of blood serum, and regulations to prevent the further spread of infection. The use of vaccine was to be restricted to herds where it was not possible to overcome by other means the risk of infecting healthy animals. Cows which reacted to the diagnostic tests were to be sent to slaughter when convenient; compulsory slaughter with compensation was not envisaged at the present stage of eradication.—R.M.

ANCZYKOWSKI, F. (1957). Aglutynacja probówkowa z mlekiem (APM). **[Milk tube-agglutination test for brucellosis.]**—*Méd. vét. Varsovie* **13,** 145-146. [In Polish. English and Russian summaries.] **2320**

Using a standard antigen and whey as controls, tube agglutination tests were carried out on 48 positive and 71 negative samples of cow's milk, and 39 negative samples of goat's milk. No difference was found between the whole milk and whey tube agglutination tests.—M. GITTER.

KALININ, B. P. (1957). **[Effect of pentoxyl on the formation of antibodies (agglutinins) in experimental brucellosis.]** — *J. Microbiol., Moscow* **28,** No. 4. pp. 51-54. [In Russian.] **2321**

Pentoxyl (5-oxymethyl-4-methyluracil) stimulates leucopoiesis. It was administered by mouth to rabbits at a dosage of 40 mg./kg. body wt. daily for 20 days; at the same time 3 s/c injections of 1 ml. *Br. abortus* Strain 19 vaccine were administered at intervals of 4 days. The agglutinin titres of these rabbits were 1·47–1·87 times greater than those of rabbits immunized by the same procedure but without pentoxyl. The drug was recommended for the treatment of brucellosis, in combination with biomycin, levomycetin or syntomycin.—R.M.

MRYGOŃ, J. (1957). Zachowanie się odczynu aglutynacji, wiązania dopełniacza i próby pierścieniowej mleka przy brucelozie bydła. **[Evaluation of the agglutination test, the complement-fixation reaction and the ring test in bovine brucellosis.]**—*Méd. vét., Varsovie* **13,** 9-12. [In Polish. English and Russian summaries.] **2322**

Using 13 cows known to be infected with *Br. abortus,* M. carried out all 3 tests every 2 weeks over a period of 6 months. The complement-fixation test yielded 200 positive, 56 negative and 5 doubtful reactions; the agglutination test 127 positive, 95 negative and 39 doubtful; the ring test 162 positive, 98 negative and 1 doubtful. M. is of the opinion that the agglutinins in milk are maintained at a more even level than in blood. He favours the ring test because it is simple, easy to interpret, and there is no drop in milk yield which often follows mass blood sampling.—M. GITTER.

ANINA-RADCHENKO, N. D. & BRETSLAVETZ, N. F. (1957). **[Therapeutic action of tezan and phthivazide in brucellosis.]**—*J. Microbiol., Moscow* **28,** No. 4. pp. 93-95. [In Russian.] **2323**

G. pigs were inoculated s/c with 10 I.D. of *Br. melitensis* or *Br. abortus.* 10–25 days after infection treatment was commenced by the oral administration of 0·2 ml. 0·1% solution of tegan [composition not stated], or 0·025 g. phthivazide (or ftivazid), an *iso*-nicotinic acid derivative, thrice daily for 10 days. The animals were killed 30–120 days after infection. Evidence of infection with *Br. melitensis* was absent in 20 out of 47 treated with tezan, in 17 out of 42 treated with phthivazide, and in none out of 37 untreated controls. In *Br. abortus* infection there were no lesions in 23 out of 47 treated with tezan, 22 out of 42 treated with phthivazide, and 1 out of 34 untreated controls.—R.M.

DUBIEŃSKA, W. (1957). Przozynek do badań inwentaryzacyjnych nad występowaniem brucelozy u świń na terenie województwa zielonogórskiego. **[Incidence of brucellosis in pigs in the Zielonagóra Province, Poland.]**—*Méd. vét., Varsovie* **13,** 146-147. [In Polish. English and Russian summaries.] **2324**

Of 636 slaughter pigs 6 had a titre of 1:25 in the tube agglutination test; of 136 pigs on 7 state farms 7 had a titre of 1:25 and 4 a titre of 1:12·5. Although D. did not consider these titres to be of any significance, she suggested that further investigation was advisable in view of the incidence of porcine brucellosis in neighbouring countries.—M. GITTER.

ELBERG, S. S. & FAUNCE, K., JR. (1957). **Immunization against brucella infection. VI. Immunity conferred on goats by a nondependent mutant from a streptomycin-dependent mutant strain of *Brucella melitensis*.** — *J. Bact.* **73,** 211-217. [Authors' summary modified.] **2325**

A non-dependent mutant isolated from a streptomycin-dependent population of *Br. melitensis,* when injected in the viable state, conferred an immunity on goats which enabled them to resist a challenge infection of 33 $I.D._{50}$ of *Br. melitensis.* Non-viable organisms of the mutant strain failed to establish an immunity to the challenge dose.

LEWICKI, I. (1956). Eigenschaften der Antigene aus Bruc. Abortus und Bruc. Melitensis nach Behandlung mit tryptischen Fermenten. **[Properties of *Brucella abortus* and *Br. melitensis* antigens after treatment with tryptic enzymes.]**—*Inaug. Diss., Giessen* pp. 33. **2326**

Monospecific reactions could not be obtained in precipitation tests with *Br. abortus* and *Br. melitensis* antigens treated with trypsin, pepsin, or papain. This finding was confirmed in animal experiments. The sera of g. pigs immunized with treated antigens reacted to both *Br. abortus* and *Br. melitensis* in the precipitation and slow agglutination tests. The antigens treated with papain, however, did not stimulate the production of precipitins.—M.G.G.

SANDERS, R. H. (1957). **Leptospira agglutinins in blood of horses.**—*Vet. Med.* **52,** 125-126. **2327**

Blood samples from 54 sick horses were tested for agglutinins to *L. pomona* antigen; 51 had titres of 1:1000 or over. Three out of 18 tested with *L. icterohaemorrhagiae* antigen, and 3 out of 10 tested with *L. canicola* antigen, had titres of 1:100. No serum had a titre of 1:100 or over for more than one antigen.—M.G.G.

CHALQUEST, R. R. (1957). **[Experimental infection of birds with *Leptospira pomona* present in bovine urine and preliminary studies on their role in transmission of leptospirosis.]**—*Poult. Sci.* **36,** 110-113. [Author's summary modified.] **2328**

Administration in the drinking water of diluted urine from a heifer with leptospiruria produced a positive agglutination-lysis test for *L. pomona* infection in 4 of 6 White Leghorn cockerels; 2 of 3 Hungarian partridges; 1 of 8 Pekin ducks; and in each of 2 Ring-necked pheasants. An attempt to demonstrate leptospira

in the excreta of the birds by inoculating diluted faecal samples i/p into 2-day-old chicks was unsuccessful.

BLAGOVESHCHENSKAYA, N. M. (1957). **[Epidemiology of non-icteric leptospirosis.]** — *J. Microbiol., Moscow* **28**, No. 2. pp. 82-87. [In Russian.] **2329**

An outbreak of leptospirosis in pigs was caused by serological type II "Monyakov". Non-icteric infection by the same type was transmitted to 62 human beings, who (because of water shortage) washed in water from ponds contaminated by pig excreta.—R.M.

MOCHMANN, H. (1957). Die Bedeutung des Feldhamsters (Cricetus cricetus) als Infektionsquelle des Schlamm- Feldfiebers. **[The European field hamster *Cricetus cricetus* as carrier of *Leptospira grippo-typhosa* infection.]**—*Z. Hyg. InfektKr.* **143**, 327-333. **2330**

During an epidemic of mud fever in man in a district of East Germany, *L. grippo-typhosa* was demonstrated in the kidneys of wild field hamsters. In this district hamsters are trapped not only for their pelts but also for their meat, the kidneys being considered a particular delicacy. Details were given of serological examination of wild field hamsters kept in the laboratory. Further research on the role of hamsters as carriers of other leptospiral infections is contemplated.—E.G.

BAKER, C. E., OLANDER, H., GALLIAN, M. J., LEE, C. H. & LUTHER, H. G. (1957). **Protective effect of new antibiotics and tetracycline hydrochloride against *Leptospira pomona* infection in golden hamsters.** In "Antibiotics Annual 1956-1957" pp. 887-891. [New York: Medical Encyclopedia Inc.] **2331**

Antibiotics tested were novobiocin, dihydrostreptomycin, penicillin, oxytetracycline, oleandomycin, tetracycline, and a mixture of the last two. Each was given to a group of 4–8 hamsters at the low dosage of 10–20 mg./kg. body wt. by i/m inj. at 12-hourly intervals. Presumably treatment commenced on the day of infection. Effectiveness was assessed by the length of survival of the animals. All the drugs gave partial protection, with novobiocin the least effective; but no definite conclusions could be drawn from these experiments, which were of a preliminary nature.—R.M.

ALEXANDER, A. D., GLEISER, C. A., MALNATI, P. & YODER, H. (1957). **Observations on the prevalence of leptospirosis in canine populations of the United States.**—*Amer. J. Hyg.* **65**, 43-56. **2332**

Between 1949 and 1955 microscopic agglutination tests using live leptospiral antigens were carried out on 279 sera from sick or suspected dogs, and 838 sera from dogs in the U.S. Army. Of the 279 sera 77 showed predominant agglutinins against *L. canicola*, 7 against *L. icterohaemorrhagiae*, 1 against *L. grippo-typhosa*, 2 against *L. pomona*, 1 against *L. autumnalis*, and 4 reacted equally to more than one serotype. Of the army dogs, 77 were positive for *L. canicola*, 16 for *L. icterohaemorrhagiae*, 5 for *L. grippo-typhosa*, 2 for *L. ballum*, 1 for *L. pomona*, 1 for *L. sejroe*, and 6 for more than one serotype. In studies of dogs from Alabama and Pennsylvania leptospiruria was demonstrated in 8 of 76 animals positive for *L. canicola*, but not in 26 positive for *L. icterohaemorrhagiae* or in 6 positive for more than one serotype. Most of the dogs with leptospiruria had an agglutinin titre of 1:400 or over.—M.G.G.

COACKLEY, W. & WESTON, S. J. (1957). **Studies on *Clostridium chauvoei* vaccine in Kenya.**—*J. comp. Path.* **67**, 157-164. [Authors' conclusions modified.] **2333**

A method for the large-scale production of liquid blackleg vaccine is described. The medium used was 4% peptone water containing 0·5% glucose and 0·05% cysteine hydrochloride. It was fully antigenic after storage at room temp. (18° to 23° C.) for 19 months. Cattle on an infected farm withstood challenge 18 months after vaccination. The duration of immunity in cattle in an uninfected area was at least 9 months.

THOMAS, P. L., DOWNEY, N. E. & DREADON, R. S. (1956). **Mortality in lambs due to enterotoxaemia associated with heavy infestations of *Moniezia expansa*.**—*N. Z. vet. J.* **4**, 161-165. [Authors' summary slightly modified.] **2334**

A high mortality rate in lambs due to *Clostridium welchii* Type D enterotoxaemia associated with unusually heavy infestations of *M. expansa* is recorded, and the probable role of the tapeworm as a causative agent is discussed. The efficacy of various anthelmintics was investigated. A nicotine–copper sulphate mixture was adequate for practical purposes and was the cheapest and easiest to administer. It is suggested, however, that prophylactic measures against enterotoxaemia would provide the greatest benefit.

ALIEV, A. N. (1957). **[Mechanism of the development of intoxication following administration of sub-threshold doses of *Clostridium***

septicum **toxin**]—*C. R. Acad. Sci. U. R. S. S.* **113,** 220-222. [In Russian.] **2335**

Fatal intoxication was not observed in rats given an i/m inj. of 200 m.l.d. (for mice) of *Cl. septicum* toxin. But it did occur if 20 doses each of 10 m.l.d. were given at intervals of 30 min. A single fatal dose was 900–1,000 m.l.d. —R.M.

DUFF, J. T., WRIGHT, G. G., KLERER, J., MOORE, D. E. & BIBLER, R. H. (1957). **Studies on immunity to toxins of *Clostridium botulinum*. I. A simplified procedure for isolation of type A toxin.**—*J. Bact.* **73,** 42-47. [Authors' summary slightly modified.] **2336**

A simplified procedure for the purification of *Cl. botulinum* Type A toxin was described. The toxin was precipitated from the culture by acidification at pH 3·5, and the precipitate was washed in water at pH 5. It was extracted from the washed precipitate with 0·075 M calcium chloride and precipitated from the extract at pH 3·7. It was then dissolved in phosphate buffer at pH 6·8 and precipitated with 15% ethanol in the cold. This fraction was essentially pure toxin and could be crystallized by precipitation with ammonium sulphate. The crystalline toxin had a specific activity of 269×10^6 mouse i/p LD_{50} per mg. N and was essentially homogeneous when examined in the analytical ultracentrifuge. The fractionation procedures were reproducible and could be applied on a scale suitable for routine isolation of toxin for conversion to toxoid.

SUMNER, G. R. (1957). **Thoughts on mastitis in sows.**—*Vet. Rec.* **69,** 131. **2337**

This condition is much more apparent in overfed than in underfed sows. The greatest single contributory factor is considered to be a physiological oedema, due partly to a diet rich in protein and also to premature development of the udder before parturition. Bacteriological examination of milk samples from affected herds revealed *Streptococcus agalactiae,* Group C streptococci, *Str. dysgalactiae, Str. uberis, Str. viridans, Staphylococcus aureus,* and *Escherichia coli* in both haemolytic and non-haemolytic forms. The results of treatment with antibiotics were variable. There was a great improvement in 4 herds with *E. coli* infection, after sows had received much smaller rations during the fortnight before parturition and, 5 days before parturition, 50 ml. of an *E. coli* polyvalent antiserum.—M.G.G.

I. FARHI, A. (1957). Contribution à l'étude de l'action des antibiotiques sur l'immunité. Action des antibiotiques dans les infections expérimentales de la souris. Cas d'une vaccination antérieure à l'infection. **[Action of antibiotics on experimental infections in mice. Effect of vaccination before infection.]** —*C. R. Acad. Sci., Paris* **244,** 2201-2203. **2338**

II. FARHI, A. (1957). Contribution à l'étude de l'action des antibiotiques sur l'immunité. Action des antibiotiques dans les infections expérimentales de la souris. Cas d'une vaccination associée à l'infection. **[Action of antibiotics on experimental infections in mice. Effect of vaccination associated with infection.]**—*Ibid.* 2262-2263. **2339**

I. Parenteral treatment of *S. typhi-murium* infection with chloramphenicol or tetracycline, or *Str. pneumoniae* infection with pencillin, streptomycin or tetracycline, was successful, but treated mice readily succumbed to re-infection. Vaccinated mice resisted re-infection.

II. Mice infected with *S. typhi-murium* were inoculated with homologous vaccine on the day of infection: 10 out of 50 mice thus treated died, but all except two resisted re-infection. When chloramphenicol or tetracycline was given at the time of infection, 8 out of 50 and 3 out of 50, respectively, died, and all except 3 in both groups resisted re-infection. In similar experiments with *Str. pneumoniae,* 34 of 50 untreated animals died and all the survivors resisted re-infection. Animals treated with penicillin, dihydrostreptomycin or tetracycline had only isolated losses after the initial infection and after re-infection.—R.M.

TERPSTRA, J. I. (1956). **Some aspects of genital infections in cattle.**—*IIIrd Int. Congr. Anim. Reprod., Cambridge,* Plenary Papers, pp. 34-36. **2340**

T. stated that nymphomaniac cows yielded the richest cultures of *V. fetus* from the endometrium. All bulls yielding pathogenic vibrios have had suggestive histories as disease spreaders. Some infected bulls could be detected by cultures from preputial washings, but culture of mucus from heifers served by the bull gave better results, although even then some bulls were not immediately detected. Sporadic abortions were caused by a special group ('Group III') of vibrios which were catalase positive and H_2S positive [see also *V.B.* **26,** 2545]. T. regarded vibriosis as a venereal disease, and did not accept the possibility of transmission from heifer to heifer as described by Plastridge and others [*V.B.* **26,** 1561]. Some

heifers which became pregnant to a bull infected with vibriosis were slaughtered at the 3rd month of pregnancy: antibody concentration was highest in the cervical seal.

T. regarded venereal brucellosis as a fairly important cause of infertility in heifers. He gave the preliminary results of experiments with the intracervical inoculation of Strain 19 vaccine; they indicated that better protection against abortion might be achieved by this route of inoculation than by subcutaneous inoculation.

—F. L. M. Dawson.

Feeney, R. E., Petersen, I. M. & Sahinkaya, H. (1957). **"Liesegang-like" rings of growth and inhibition of bacteria in agar caused by metal ions and chelating agents.**—*J. Bact.* **73,** 284-290. [Authors' summary modified.] **2341**

The formation of multiple alternate rings of growth and inhibition of growth of microorganisms on agar medium caused by chelating agents and metal ions are described and discussed. The rings were produced either by incorporating chelating agents in the medium and salts in filter paper discs on the surface of the medium or by incorporating chelating agents in the filter paper discs. Concentric rings of growth and inhibition of growth were produced around the discs. Of the various chelating agents tested, 5-methyl-1,10-phenanthroline and 8-hydroxyquinoline gave the best formation of multiple rings with *Staphylococcus albus* and *Bacillus subtilis* as the test organisms. The formation of the multiple alternate rings was compared with the formation of Liesegang rings caused by interactions of salts in gelatin or agar. The possibility that they are both caused by the same phenomenon is discussed.

Thompson, R. E. M. & Bissett, K. A. (1957). *Polysepta*: **a new genus and sub-order of bacteria.**—*Nature, Lond.* **179,** 590-591. **2342**

The authors proposed the creation of a new genus *Polysepta,* in a new sub-order Polyseptineae, of the order Eubacteriales, to contain so far two species pathogenic to sheep, (1) *P. dermatonomus,* first described by Bull [*Aust. J. exp. Biol.* **6,** 301 (1929)] as *Actinomyces dermatonomus,* causing "lumpy wool" (mycotic dermatitis of sheep) in Australia, and (2) *P. pedis,* first described by Thompson [*V.B.* **25,** 1944] as possibly a species of *Rhizobium,* producing strawberry foot rot in sheep in the United Kingdom. A summary of the characters of the two species is given.—E. G. White.

McCarty, R. T. (1956). **Moniliasis as a systemic infection in cattle: field case reports.**—*Vet. Med.* **51,** 562-564. **2343**

P.M. examination of three cattle revealed pneumonic consolidation of the lungs with nodule formation, from which *Candida albicans* was recovered. Isolations were also made from the kidney of one animal and from a necrotic plug in the intestinal lining. Severe respiratory symptoms were observed in cattle in fattening pens in California, usually associated with profuse salivation, nasal discharge and diarrhoea. Treatment with broad spectrum antibodies had invariably been unsuccessful and these substances had also been added to the feed.

—P. K. C. Austwick.

Scherr, G. H. (1957). **The effect of hormones on experimental moniliasis in mice. I. Sex hormones, cortisone, and somatotrophic hormone. II. Gonadotropins.**—*Mycopathologia* **8,** 62-72 & 73-82. [In English. Author's summaries modified.] **2344**

I. By inoculating testosterone or oestradiol alone and in combination with cortisone and pituitary growth hormone into male and female mice infected with moniliasis, it was shown that these sex hormones play a major role in modifying the course of the infection in these animals. The use of testosterone indicated that it had a marked synergic activity with cortisone in enhancing the severity of the infection for both sexes. In addition, a mixture of testosterone and cortisone inoculated into healthy mice at dosages which had no toxic effect when either agent was used alone, displayed a marked toxicity for the males. These data support the contention that sex plays a major role in governing the response of normal or infected animals to cortisone and/or growth hormone. The possible clinical implication of these data is discussed.

II. Various gonadotropic hormones were inoculated into mice infected with systemic moniliasis. The course of the infection was modified in a beneficial or deleterious manner depending on such conditions as the severity of infection, sex, doses used and their schedule of inoculation, route of inoculation and source of gonadotrophin. The relationship between these data and similar effects ascribed to cortisone is presented and discussed.

Roth, F. J., Jr. & Murphy, W. H., Jr. (1957). **Lethality of cell-free extract of *Candida albicans* for chlortetracycline-treated**

mice.—*Proc. Soc. exp. Biol., N.Y.* **94,** 530-532. [Authors' summary modified.] **2345**

Ultrasonic irradiation of viable *C. albicans* cells released a substance lethal to mice treated with chlortetracycline. In the absence of antibiotic or when injected after chloramphenicol or streptomycin it was inactive, while with oxytetracycline it was only slightly active. Viable *C. albicans* cells were toxic for mice, rabbits, g. pigs and monkeys treated with chlortetracycline.

KLIGMAN, A. M. (1956). **Pathophysiology of ringworm infections in animals with skin cycles.** — *J. invest. Derm.* **27,** 171-185. [Author's summary modified.] **2346**

In the mouse, rat and hamster, ringworm is conditioned by the stage of the skin cycle. The period of susceptibility is the latter part of the stage of active hair growth ("anagen" stage). The mouse is susceptible in varying degrees to many species of dermatophytes. The findings are discussed in relation to the physiology of mouse skin, the suitability of the mouse for ringworm research, and the light thrown on the pathogenesis of the inflammatory reaction.

VAN UDEN, N. & DO CARMO SOUSA, L. (1957). **Yeasts from the bovine caecum.**—*J. gen. Microbiol.* **16,** 385-395. [Authors' summary modified.] **2347**

From the caeca of 252 adult cattle 131 yeast strains were isolated, distributed as shown (in parentheses) among the following species: *Saccharomyces cerevisiae* (12), *S. chevalieri* (3), *S. drosophilarum* (3), *S. fragilis* (1), *Pichia bovis* (1), *P. membranaefaciens* (3), *P. fermentans* (3), *Cryptococcus diffluens* (1), *Torulopsis glabrata* (4), *Torulopsis* sp. (2), *Candida tropicalis* (45), *C. parapsilosis* (3), *C. krusei* (33), *C. macedoniensis* (1), *C. utilis* (1), *C. bovina* (1), and *Trichosporon cutaneum* (5). The apparent absence of *C. albicans* may explain the rareness of oral and intestinal moniliasis in cattle. Infection in certain forms of yeast mastitis (caused neither by *C. albicans* nor by *Cryptococcus neoformans*) may be derived from the intestinal tract. Descriptions and Latin diagnoses of *P. bovis* n.sp. and *C. bovina* n.sp. are given.

SPENCER, D. M., TOPPS, J. H. & WAIN, R. L. (1957). **An antifungal substance from the tissues of *Vicia faba*.**—*Nature, Lond.* **179,** 651-652. **2348**

Segments of stems and roots of broad bean (*Vicia faba*) seedlings produced a zone of inhibition on plates seeded with spores of *Aspergillus niger*. Some of the properties of the antifungal agent were studied.—E. G. WHITE.

TOPPS, J. H. & WAIN, R. L. (1957). **Fungistatic properties of leaf exudates.**—*Nature, Lond.* **179,** 652-653. **2349**

Intact leaves of a number of shrubs and trees yielded small quantities of water-soluble compounds with fungitoxic properties which were demonstrated by their effect on spore germination and germ-tube length of *Botrytis cinerea*. The existence of higher concentrations of such agents in the film of moisture on the surface of leaves might represent a natural defence mechanism against fungal attack.

—E. G. WHITE.

CAMARA, H. -A. (1956). Essai de traitement de la péripneumonie contagieuse du boeuf par la *bronchocilline*. **[Treatment of bovine contagious pleuropneumonia with "Bronchocillin".]**—*Rev. Élev.* **9,** 351-357. [English and Spanish summaries.] **2350**

Four cattle, severely affected with bovine contagious pleuropneumonia, were treated with "Bronchocillin", the hydriodide of the diethylamino-ethyl ester of benzylpenicillin. This drug has an affinity for pulmonary tissue and is eliminated by expectoration. The treatment consisted of 1,000,000 units injected i/m on the first day, followed by 2 similar injections on each of the 2 following days. Clinical examination of the cattle 7 months later revealed that 3 had recovered completely. The fourth, in which both lungs were affected, did not respond to treatment.—M.G.G.

TAYLOR, J. R. E. & FABRICANT, J. (1957). **Studies on the isolation of the pleuro-pneumonia-like organism of chronic respiratory disease of fowls.**—*Cornell Vet.* **47,** 112-126. **2351**

A modification of the liquid carbohydrate medium described by Grumbles *et al.* was used with thallous acetate and penicillin as bacterial inhibitors. Isolation from the tracheae of 120 chickens was attempted on modified liquid media, in chick embryo yolk sac and on solid media. Best results were obtained with the liquid medium, which has the advantages of speed, simplicity and economy. Bacterial contaminants encountered on solid media without inhibitors were, in order of frequency, *Escherichia,* staphylococci, streptococci, *Proteus, Pseudomonas,* fungi, Gram-positive and Gram-negative organisms.—T.E.G.R.

HOBSON, P. N. & MANN, S. O. (1957). **Some studies on the identification of rumen bacteria with fluorescent antibodies.**—*J. gen. Microbiol.* **16,** 463-471. [Authors' summary modified.] **2352**

Fluorescent antisera to isolates of rumen

bacteria demonstrated the presence of these organisms in ruminal contents. Serological tests for a specific organism in the ruminal contents of calves agreed with isolations of this organism from the same sources. A microscope suitable for this work, the preparation and purification of antisera, and the preparation of specimens are described.

LEV, M. & BRIGGS, C. A. E. (1956). **The gut flora of the chick. I. The flora of newly hatched chicks. II. The establishment of the flora.**—*J. appl. Bact.* **19,** 36-38 & 224-230. [Authors' summaries modified.] **2353**

I. A caecal microflora was demonstrated in newly hatched chicks that had not received food or water. It consisted maily of clostridia, sometimes with *Escherichia coli.*

II. Viable counts were made in three media from the crop, gizzard, duodenum, ileum and caeca of chicks from 2 to 30 days old. A balanced gut flora was established one day after feeding. An indication of the actual development of the flora was obtained in chicks 4 hours after feeding. The relationship between the flora at different ages and that in newly hatched chicks before feeding is discussed.

MEYER, M. E. & CAMERON, H. S. (1957). **Species metabolic patterns in morphologically similar Gram negative pathogens.**—*J. Bact.* **73,** 158-161. [Authors' summary slightly modified.] **2354**

Selected species from the genera *Brucella, Moraxella, Neisseria,* and *Bordetella* were subjected to standardized experimental conditions for manometric studies to determine the basic metabolic patterns of resting cells on 26 amino-acid substrates. A determination of the metabolic pattern may be helpful in the species identification of these morphologically similar micro-organisms. The method may also prove of value in ascertaining general biological and taxonomic relationships.

See also absts. **2397** (S. cholerae-suis and swine fever); **2536** (V. fetus); **2555** (infectious infertility in cattle); **2562** (report Gt. Britain); **2563** (report, Canada); **2564** (Yearbook, New South Wales); **2566 & 2567** (reports, S. Rhodesia); **2568** (report, Gold Coast).

DISEASES CAUSED BY PROTOZOAN PARASITES

SHEPPE, W. A. & ADAMS, J. R. (1957). **The pathogenic effect of *Trypanosoma duttoni* in hosts under stress conditions.**—*J. Parasit.* **43,** 55-59. [Authors' summary modified.] **2355**

Mice infected with the "non-pathogenic" *T. duttoni* were subjected to stress in the form of partial starvation and low environmental temp. Parasitized mice which were starved died significantly earlier than control mice. Parasitized mice which were not starved gained only about half as much weight as did the controls. These findings suggest that *T. duttoni* has a harmful effect on its host.

THILLET, C. J., JR. & CHANDLER, A. C. (1957). **Immunization against *Trypanosoma lewisi* in rats by injections of metabolic products.**—*Science* **125,** 346-347. **2356**

Six 100 g. rats were each given 6 i/p injections at 3-day intervals, with the metabolic products from 4000 million trypanosomes; 6 others were injected with 4000 million triturated trypanosomes; 6 controls were inj. with normal serum and saline and 6 others were not injected. On the 10th–12th day after inj. all rats were inoculated i/p with 50,000 washed adult trypanosomes. All rats in the control groups developed typical infections, those inj. with triturated bodies developed infections of a lower degree but those inj. with metabolic products remained negative. *In vitro* there was more rapid agglutination of trypanosomes in sera from rats inj. with metabolic products than in sera from other rats. The anti-metabolic-products antibody is regarded as ablastin. The results indicate that agglutination and reduced locomotion effects hitherto attributed to trypanocidal or other antibodies, are really produced by ablastin.—D. POYNTER.

I. THOMAS, S. O., SINGLETON, V. L., LOWERY, J. A., SHARPE, R. W., PRUESS, L. M., PORTER, J. N., MOWAT, J. H. & BOHONOS, N. (1957). **Nucleocidin, a new antibiotic with activity against trypanosomes.** In "Antibiotics Annual 1956-1957" pp. 716-721. [New York: Medical Encyclopedia Inc.] **2357**

II. HEWITT, R. I., GUMBLE, A. R., TAYLOR, L. H. & WALLACE, W. S. (1957). **The activity of a new antibiotic, nucleocidin in experimental infections with *Trypanosoma equiperdum.*** *Ibid.* pp. 722-729. **2358**

I. This is the first report of an antibiotic isolated from *Streptomyces calvus* n.sp., having the empirical formula $C_{11}H_{16}N_6O_8S$. It was active *in vitro* against a wide range of bacteria, but was of greatest interest because of its high activity against trypanosomes.

II. Nucleocidin cured *T. equiperdum* in mice when 0·02–0·05 mg./kg. body wt. was given parenterally or 0·6 mg./kg. orally, within

a few hours after infection. An i/m inj. of the drug protected mice from infection for at least 24 hours. Given parenterally, nucleocidin was 40 times more active than antrycide or suramin and 4,000 times more active than tetracycline. Unfortunately, toxicity for cattle was fairly high (dosages above 0·01 mg./kg. body wt.) but was thought to be not sufficiently high to preclude therapeutic trials in bovine trypanosomiasis.—R.M.

MARKOWSKI, A. (1956). Badania nad rozprzestrzenieniem zarazy rzęsistkowej w rejonie podwarszawskim oraz adaptacja do warunków terenowych diagnostyki tego schorzenia przez hodowlę na pożywkach sztucznych. **[Incidence of and diagnosis by culture of bovine trichomoniasis in the Warsaw district.]** —*Roczn. Nauk rol. Ser. E.* **67,** 425-443. [In Polish. English and Russian summaries.] **2359**

Out of 360 bulls examined 102 (28·3%) were found infected with *Trichomonas foetus* and the disease was distributed uniformly throughout the district. Scrapings of mucous membrane of the penis and prepuce, taken with a glass pipette, and washings of the preputial cavity were examined microscopically and cultivated on Schneider's medium. The bulls were examined 3 times. 83 were found infected on the first examination, 11 on the second and 8 on the third. Culture yielded about 60% better results than direct microscopic examination. To prevent bacterial contamination of washings, Goetze's medium was used with 2,000 units of crystalline penicillin and 4 mg. streptomycin per ml. of medium. Trichomonads multiplied above 25°C. and at lower temperature remained viable longer than in physiological saline or Ringer's solution.—M. GITTER.

HORTON-SMITH, C. & LONG, P. L. (1956). **Further observations on the chemotherapy of histomoniasis (blackhead) in turkeys.**—*J. comp. Path.* **66,** 378-388. **2360**

There were no deaths from histomoniasis in poults receiving furazolidone (0·015% wt./wt.) in the food 2 days before infection with *Heterakis* ova and maintained on treatment for 15, 25, 40 and 60 days, but relapses occurred after withdrawal of the 15 and 25 day courses. Some relapses occurred in poults receiving a 56-day course of 0·015% furazolidone starting from the day after infection with *Heterakis* ova. One poult died during medication and relapses occurred on the 12th and 46th days after the end of medication. During a 14-day course of 0·04% furazolidone in the food from the 10th and 12th days of infection, poults were protected but some relapses occurred on its withdrawal; few relapses occurred in the group treated from the 12th day of infection. With 0·04% furazolidone in the feed for 14 days from the 10th day of infection, protection from relapse was inferior to that afforded by 0·1% aminonitrothiazole or 2-acetamido-5-nitrothiazole similarly given in the food.

A series of high doses of furazolidone and aminonitrothiazole administered directly to individual turkeys with well established infections may prevent or reduce deaths from histomoniasis. The applications and limitations of treatment with furazolidone were discussed.

—D. POYNTER.

COOPER, D. M. & SKULSKI, G. (1957). **Effect of feeding 2-amino-5-nitrothiazole and 2-acetyl-amino-5-nitrothiazole on reproduction in the fowl.**—*J. comp. Path.* **67,** 186-195. [Authors' conclusions modified.] **2361**

Enheptin (2-amino-5-nitrothiazole) and Enheptin-A (2-acetyl-amino-5-nitrothiazole) were fed at preventive levels for 33 weeks to growing fowls. Enheptin had a marked effect on spermatogenesis and egg production. Although spermatogenesis did not entirely cease, the semen was less dense and fertilizing ability slightly decreased. There was, however, a marked increase in embryonic mortality unless males mated frequently to ensure a constant supply of viable spermatozoa in the oviduct. Enheptin-A had no adverse effect on egg production, fertility or embryonic mortality. Semen production and density were slightly reduced owing to patches of atrophy of the seminiferous tubules. Some tubules showed an absence of spermatids as well as decreased numbers of spermatocytes, but these changes were not considered sufficiently great to cause a reduction in fertility and hatchability. Nine weeks after discontinuance of Enheptin-A the testicles returned to normal. Twelve weeks after the discontinuance of Enheptin, they still showed some atrophied seminiferous tubules but in other tubules there were some spermatozoa.

IKEDA, M. (1956). **[Factors necessary for *E. tenella* infection of the chicken. IV. Investigations of the site of the action of the pancreatic juice on infection.]**—*Jap. J. vet. Sci.* **18,** 45-52. [In Japanese. Abst. from English summary. For previous parts, see *V.B.* **27,** 90, 1411 & 1412.] **2362**

The author suggested that proteolytic enzymes in pancreatic secretion were responsible for dissolving the cyst of the oocysts. This explained the inability of oocysts to infect the

caeca in the absence of pancreatic secretion. [In the abst. of Part I (*V.B.* **27,** 90) the last sentence should read: "Infection did not occur in the chicks with ligated pancreatic ducts."]

—R.M.

BERG, L. R., HAMILTON, C. M. & BEARSE, G. E. (1956). **Nitrofurazone and nicarbazin as growth stimulants and coccidiostatic agents for young chicks.**—*Poult. Sci.* **35,** 1394-1395. **2363**

"Nicarbazin, 0·02% in the food, depressed rate of growth and the efficiency of food conversion. At 0·0125% there was no effect on the rate of growth but the efficiency of food conversion was significantly depressed. At 0·0083% of the food nitrofurazone depressed the rate of growth in chicks up to 3 weeks of age. In older birds were was no such depression and food conversion efficiency was improved. It is stated that experimental results indicate that nicarbazin at a concentration of 0·0125% prevented [*sic*] infection with *Eimeria tenella* but allowed the development of immunity to the parasite. It is further stated that nicarbazin prevented the development of immunity to *E. necatrix*. By contrast nitrofurazone at concentrations of 0·0055%, 0·007% and 0·0083%, gave only partial protection against coccidiosis but allowed the development of immunity to *E. tenella* and partial resistance to *E. necatrix*. It is noted that some of these results are not in aggreement with those reported by Cuckler *et al.* [*V.B.* **27,** 731].

—S. BRIAN KENDALL.

CUCKLER, A. C. & MALANGA, C. M. (1957). **The effect of antibiotics on avian coccidiosis and enterohepatitis.** In "Antibiotics Annual 1956-1957" pp. 592-595. [New York: Medical Encyclopedia Inc.] [Authors' summary modified.] **2364**

Twelve antibiotics were studied for anticoccidial activity in caecal coccidiosis in chicks. Spiramycin and chlortetracycline were as active as sulphaquinoxaline. The other antibiotics were ineffective, although penicillin and streptomycin had slight activity in high dosages. None of the antibiotics tested had significant activity in experimental enterohepatitis in turkeys.

NEITZ, W. O. (1956). **A consolidation of our knowledge of the transmission of tick-borne diseases.**—*Onderstepoort J vet. Res.* **27,** 115-163. **2365**

Ticks concerned in the transmission of *Babesia, Aegyptianella, Theileria, Gonderia, Anaplasma, Borrelia,* viruses and "toxins" responsible for diseases in livestock are enumerated and the information presented in tables. An attempt is made to determine the correct names of various ticks. It is noted that the vectors of *Babesia major, B. taylori, B. foliata, B. perroncitoi, B. felis* and *Gonderia hirci* need to be determined. In all tick-borne diseases except tick paralysis and sweating sickness, stage to stage transmission within the same generation has been proved in one or more of the vectors. Transovarial transmission is proven in one or more of the vectors, except those concerned with the transmission of *Th. parva, Th. mutans, Th. laurencei, Th. bovis, Rickettsia ruminantium, R. bovis, R. ovina,* tick-borne fever, louping-ill, Czechoslovakian tick encephalitis and Kisenyi sheep disease. From this it is deduced that ticks act not only as vectors but also as reservoirs of certain infectious agents. The potential vectors of some diseases occur beyond the boundaries of known endemic areas. There is an extensive bibliography.

—D. POYNTER.

ANON. (1957). **[Great importance of prophylaxis of haemosporidial infections in farm animals.]**—*Veterinariya, Moscow* **34,** No. 3. pp. 3-7. [In Russian.] **2366**

In 1956 piroplasmosis, anaplasmosis and theileriosis in all species of farm animals accounted for 3% of all cases of infectious disease in the U.S.S.R. There were 27% more cases in cattle in 1956 than in 1954, but the number of cases in sheep and horses declined during this period. Stress was laid on thorough anti-tick dressing of animals and methods of management to avoid continuous use of tick-infested pastures. Chemoprophylaxis was not mentioned.—R.M.

ZELIM OLGUI, S. A. (1957). **[Use of aminoacriquine and penicillin in bovine theileriosis.]**—*Veterinariya, Moscow* **34,** No. 3. p. 34. [In Russian.] **2367**

Twenty-four heifers with *Th. annulata* infection recovered after prompt treatment with aminoacriquine at a dosage of 0·3 ml. of 1% soln./kg. body wt., given i/v, combined with 500,000 units of penicillin by i/m inj. (100,000 units every 3 hours). Caffein was also given. Only 5 of the animals required a second treatment on the following day. [See also *V.B.* **26,** 2581 & 3434; **27,** 1418.]—R.M.

GORDIENKO, A. A. (1957). **[Treatment of bovine theileriosis with bigumal.]**—*Veterinariya, Moscow* **34,** No. 3. pp. 34-35. [In Russian.] **2368**

Bigumal [proguanil?] was administered i/v as a 5–7% suspension in saline at a dosage of 0·015 ml./kg. body wt. On the first day of treatment caffeine was also administered s/c and calcium chloride by mouth. The same dosage of bigumal was repeated on the 2nd and 3rd days of treatment if necessary. This treatment was stated to give good results in *Th. annulata* infection of cattle, but no figures were given. [Earlier work on the use of bigumal in theileriosis has given conflicting results: see A.I. Shmulevich (1953) *Trud. nauchno-kontrol. Inst. vet. Preparatov* **4**, p. 90.]—R.M.

Biering-Sørensen, U. (1957). Serologiske undersøgelser over udbredelsen af latent toxoplasmose hos dyr og mennesker i et milieu med verificeret toxoplasmosis gallinarum. [**Serological survey for latent toxoplasmosis in animals and human beings, in districts where avian infection occurred.**] — *Nord. VetMed.* **9**, 129-144. [In Danish. English and German summaries. Abst. from English summary.] **2369**

In an area where toxoplasmosis had been demonstrated in fowls, all of 6 human beings, 4 of 22 geese, 2 of 6 horses, none of 15 cattle, and 7 of 8 pigs were positive to the dye-test for toxoplasmosis. Repeated serological examination of the horses revealed a gradual fall in titre over a period of several months. The organism was isolated from 8 fowls by inoculation of material into mice. Pseudocysts were observed in 7 of these fowls.—M.G.G.

Gabka, J. (1957). Tierexperimenteller Beitrag zur Frage der Entstehung primärer Missbildungen durch die Toxoplasmose. [**Animal experiments on the causation of primary malformations by toxoplasms.**]—*Zbl. allg. Path. path. Anat.* **96**, 135-146. **2370**

G. concluded that maternal toxoplasma infection was one of many exogenous factors which could cause death and the formation of facial clefts in mouse and rat foetuses.—R.M.

Fulton, J. D. & Spooner, D. F. (1957). **Preliminary observations on the metabolism of *Toxoplasma gondii*.**—*Trans. R. Soc. trop. Med. Hyg.* **51**, 123-124. [Authors' summary modified.] **2371**

A method of preparing pure suspensions of *T. gondii* for metabolic and immunological studies is described. The parasites utilized oxygen and glucose, and produced CO_2. Respiration declined in the presence of cyanide.

Chernin, E. & Weller, T. H. (1957). **Further observations on the growth of *Toxoplasma gondii* in roller tube cultures of mouse and primate tissues.** — *J. Parasit.* **43**, 33-39. [Authors' summary modified.] **2372**

The RH strain of *T. gondii* was propagated for 23 passages and a second strain for 13 in roller cultures of mouse embryonic tissues. Prolonged *in vitro* cultivation did not significantly alter infectivity as measured *in vivo* and *in vitro*. The general sequence of multiplication and of the appearance of specific cytopathogenic effects was fairly constant. However, failure to renew the medium at intervals reduced the number of organisms produced, and the introduction of minimal inocula delayed their appearance by several days. Further experiments revealed that: (a) *T. gondii* could be found intracellularly within 6 hours after inoculation; (b) during *in vitro* cultivation it probably multiplied intracellularly by binary fission; (c) it proliferated in both epithelial and fibroblastic cell types; and (d) all cells in inoculated cultures were ultimately destroyed. No stable soluble toxin was demonstrated. It retained its capacity to multiply *in vitro* within cells from various human tissues and from rhesus testicular tissues [see also *V.B.* **24**, 2690].

Cathie, I. A. B. & Cecil, G. W. (1957). **Sarcospores and toxoplasm serology. An investigation of their alleged cross-reaction.** — *Lancet* **272**, 816-818. [Authors' summary copied *verbatim*.] **2373**

Evidence is presented that human and sheep sera contain a substance capable of modifying the spores of *Sarcocystis tenella* so that they do not stain with methylene-blue. This substance was present in all of 116 human and all of 10 sheep sera. Sarcospores therefore cannot be used to demonstrate the presence of dye-test antibodies for toxoplasmosis or sarcosporidiosis.

Hoppenrath, J. (1956). Versuche zur Konservierung von lebenden Trypanosomen, Trichomonaden und Toxoplasmen mittels Tiefkühlung und Vakuumgefriertrocknung. [**Preservation of living trypanosomes, trichomonads and toxoplasms by deep freezing and freeze-drying.**]—*Inaug. Diss., Giessen* pp. 47. **2374**

Whilst trypanosomes (*T. equiperdum*) could not be preserved at −180°C., trichomonads (*Tr. foetus*) were stored thus for up to 8 weeks. Toxoplasms (*T. gondii*) were morphologically unchanged after 14 days' storage; mice inoculated with them sickened 8–12 days later, but only a few died. The rest recovered. Toxoplasms were not demonstrable in their blood.

Trypanosomes withstood preservation at −72°C. for 3 hours, but trichomonads died

immediately. Some of the mice inoculated with frozen toxoplasms died after 16–21 days, but the organisms were not demonstrable in their blood.

Neither trypanosomes nor trichomonads could be preserved by freeze-drying. Freeze-dried toxoplasms kept their shape for 6 months when stored at 4°C. They produced illness in mice but only a few died. Inoculation of organ material from dying mice into healthy mice produced the same course of disease. This was continued for 4 passages but at no time were toxoplasms found in the blood.—M.G.G.

EADIE, J. M. & OXFORD, A. E. (1957). **A simple and safe procedure for the removal of holotrich ciliates from the rumen of an adult fistulated sheep.** — *Nature, Lond.* **179,** 485. **2375**

The purpose of this procedure was to free the rumen of all holotrich ciliates so that a single species could be re-established in pure culture. The rumen was emptied *via* a cannula, and repeatedly washed out with water and with saline, ciliates being very sensitive to the hypotonicity of water. 3 litres of the original rumen contents were strained, heated at 50°C. for 15 min., after which no ciliates remained alive but the bacteria survived. The fluid was then cooled to 38°C. and returned to the rumen. The sheep was kept isolated from other sheep. After 13 days only oligotrich ciliates had re-established themselves, the animal remaining suitable for the original purpose of establishing the holotrich ciliate *Dasytrichia ruminantium,* which has since remained in pure culture for 11 months with no untoward effects on the host.

—H. SCOTT MCTAGGART.

See also abstr. **2566** & **2567** (reports, S. Rhodesia); **2568** (report, Gold Coast).

DISEASES CAUSED BY VIRUSES AND RICKETTSIA

BROWN, F. & CRICK, J. (1957). **Specific precipitin reactions with the viruses of foot-and-mouth diseases and vesicular stomatitis.**— *Nature, Lond.* **179,** 316-318. **2376**

Type-specific reactions occurred between different immunological types of F. & M. disease and vesicular stomatitis viruses and their respective antisera in agar gel. The double-diffusion tube and the Ouchterlony plate methods were used. [See also *V.B.* **26,** 1940.]—R.M.

ANON. (1957). **Indications for anti-rabies treatment.**—*Mon. Bull. Minist. Hlth Lab. Serv.* **16,** 34-37. **2377**

Prophylactic treatment for rabies consists of 14 to 21 daily injections of vaccine, together with, for the first 2 days, hyperimmune serum. It should begin as soon as possible after the risk of infection and should not be interrupted. It is not without possible complications, and should therefore be instituted only when the risk so demands. Hypersensitivity to the vaccine is rare, however, except in people who have received previous treatment within a year, and the incidence of neuroparalytic complications varies from 1:2,000 to 1:20,000. Contact between the patient and the suspected dog more than 10 days before the death of the dog is unlikely to constitute a risk of infection. Immediate treatment should be given to a person coming from a known infected area who has been bitten by a vampire bat. Hospital staff with abrasions of the skin should not be allowed contact with cases. All articles contaminated by patients' saliva must be sterilized.—M.G.G.

MUSSGAY, M. (1957). Hämagglutination und Hämolyse durch einen eiadaptierten Stamm des Osttyps des amerikanischen Pferdeencephalitis-Virus. II. Untersuchungen über den Agglutinationsmechanismus und die Hemmung der Hämolyse. **[Haemagglutination and haemolysis by an egg-adapted strain of the Eastern type of the American equine encephalomyelitis virus. II. Studies on the agglutination mechanism and on inhibition of haemolysis.]** — *Zbl. VetMed.* **4,** 243-260. [English, French and Spanish summaries. English summary modified.] **2378**

Haemagglutinating and haemolysing factors were obtained by acetone-ether extraction of infected chick embryos. By changing the temperature, salt concentration and pH, two phases could be distinguished in the haemagglutination and haemolysis reactions. The first phase is interpreted as an electrostatic adsorption and the second is enzymic in character and leads to haemolysis and stable agglutinates. Inactivation of haemagglutinins at the pH and temperature necessary for the haemagglutinin reaction to occur was hindered by high salt concentrations. Haemolysis could be hindered at any stage of the reaction by lecithin and at its commencement by a component of mouse serum. In the ultracentrifuge the haemagglutinating and haemolysing activity was recovered together with the infective principle. A possible scheme of reaction is put forward.

BRILL, J. & WOYCIECHOWSKA, S. (1956). Odczyn wiązania dopełniacza według altary

w przebiegu niedokrwistości zakaźnej koni. **[Evaluation of the complement-fixation test described by Altara for equine infectious anaemia.]** — *Roczn. Nauk rol. Ser. E.* **67,** 471-481. [In Polish. English and Russian summaries.] **2379**

Spleen of horses affected with equine infectious anaemia was used as antigen. The investigations were carried out on 2 groups of 94 and 63 horses suspected of E.I.A. and on 21 healthy controls from various breeding centres. In the first group there were 65% reactors, in the second 25% and none in the third group. When sera of horses suspected of E.I.A. were tested against spleen antigen of foetuses from cases of equine virus abortion a number of positive reactions was obtained. It was concluded that the Altara c.f. test is not specific for E.I.A.

—M. Gitter.

Miura, S., Sato, G. & Miyamae, T. (1956). **On an unsuccessful attempt of serial passage of equine infectious anemia virus in the sheep.**—*Jap. J. vet. Res.* **4,** 143-146. [In English.] **2380**

Equine infectious anaemia virus from a field case was serially passaged at 7-day intervals through 6 male Corriedale lambs, 7–9 months old. None of the lambs showed any clinical or P.M. signs of disease and the virus was not detectable in material from any of the lambs examined. This is contrary to earlier findings of Miura *et al.* [*V.B.* **26,** 824 & 1961]. [See also next abst.]—H. Scott McTaggart.

Möhlmann, H. (1956). Über vier durch Wechselpassage Pferd-Schaf-Pferd experimentell erzeugte Fälle der stummen Form der infektiösen Anämie. **[Four experimental cases of latent equine infectious anaemia caused by alternating passage of the virus between horses and sheep.]**—*Arch. exp. VetMed.* **10,** 709-712. **2381**

Of four sheep inoculated with blood from a foal affected with E.I.A., three developed a syndrome resembling the condition in horses. In a second sheep-passage two out of four, and in a third passage none out of four were affected. Blood from four of the affected sheep in the first two passage groups was injected into four foals. These failed to show any clinical reaction but were resistant when challenged with weakly infective virus. This is regarded as being due to latent infection with the sheep-attenuated virus. [See also preceding abst.]

—H. Scott McTaggart.

McIntosh, B. M. (1956). **Complement fixation with horsesickness viruses.**—*Onderstepoort J. vet. Res.* **27,** 165-169. [Author's summary modified.] **2382**

Fixation of complement was obtained with antigens prepared from baby mouse brains and antisera from hyperimmune g. pigs. With African horsesickness viruses the c.f. test is less type-specific than the neutralization test and no antigenic differentiation between the 7 heterotypic strains tested was possible. The value of the c.f. test in the diagnosis of the disease is discussed.

Nitzschke, E. (1957). Über den Nachweis eines komplementbindenden Antigens und komplementbindender Antikörper bei weissen Ratten, Meerschweinchen und Pferden, die mit dem Virus der Bornaschen Krankheit infiziert waren. **[Complement-fixing antigen and antibody in rats, g. pigs and horses infected with the virus of Borna disease.]**—*Zbl. VetMed.* **4,** 289-296. [English, French and Spanish summaries. English summary modified.] **2383**

A soluble complement-fixing antigen, like that previously found in rabbits [see *V.B.* **25,** 2798 & 4028], was demonstrated in the brains of rats, g. pigs and horses infected with Borna disease. C.f. antibodies were demonstrated in the sera of rats and g. pigs. The antigens from the different species were very similar in their serological, physical and biological behaviour, and were specific for the virus and the disease. The reaction took place at 4° to 6°C. Antibody was demonstrated by a quantitative micromethod, which saved time.

Plowright, W. & Ferris, R. D. (1957). **Cytopathogenicity of rinderpest virus in tissue culture.**—*Nature, Lond.* **179,** 316. **2384**

A preliminary report of the cultivation of rinderpest virus in monolayer tissue cultures of bovine embryonic kidney cells or fibroblasts. In both types of cell the virus caused plaque-like lesions, 1–3 mm. in diam., in which the cells became rounded and shrunken, with increased refractility and detachment from the glass surface of the culture vessel. Numerous syncytial aggregates were also formed. These contained up to 200 nuclei, with masses of deeply eosinophilic granules in the cytoplasm. The multinucleate formations were similar to those observed by Thiéry [*V.B.* **26,** 3785] in lesions of stratified squamous epithelium in cattle with rinderpest.—R.M.

HAIG, D. A., MCKERCHER, D. G. & ALEXANDER, R. A. (1956). **The cytopathogenic action of bluetongue virus on tissue cultures and its application to the detection of antibodies in the serum of sheep.**—*Onderstepoort J. vet. Res.* **27,** 171-177. [Authors' summary modified.] **2385**

Cytopathogenic activity by egg-adapted strains of bluetongue virus for sheep kidney cells in culture, and neutralization of this activity by homologous antiserum are described. The possible application of this phenomenon to the study of bluetongue is discussed briefly. Cytopathogenesis was not seen in cultures of virulent, unmodified virus.

SHONE, D. K., HAIG, D. A. & MCKERCHER, D. G. (1956). **The use of tissue culture propagated bluetongue virus for complement fixation studies on sheep sera.**—*Onderstepoort J. vet. Res.* **27,** 179-182. [Author's summary modified.] **2386**

A c.f. test for bluetongue in sheep is described in which virus grown in tissue culture is used as antigen.

ABDUSSALAM, M. & COSSLETT, V. E. (1957). **Contagious pustular dermatitis virus. I. Studies on morphology.**—*J. comp. Path.* **67,** 145-156. [Authors' conclusions modified.] **2387**

A method of obtaining washed elementary body suspensions of this virus by differential centrifugation was developed. Staining reactions of the washed elementary bodies and those in smears of early lesions of the disease were studied by systematic trials of staining methods. Paschen's method was the most satisfactory. Fixation of smears in methyl alcohol, avoidance of overheating the mordant and the stain, thorough washing away of the mordant and the use of aged stain instead of a freshly mixed one as usually recommended, assured good preparations. In general, this virus is less penetrable by stains and proteolytic enzymes than vaccinia and related viruses. Electron micrographs of washed elementary bodies revealed short rods with rounded ends and dense sub-polar regions. They are morphologically allied to the elementary bodies of pox viruses from each of which they can be differentiated by their dimensions, axial ratio and internal structure. Statistical analysis of the dimensions showed no evidence of division by simple fission or of pleomorphism.

NAUDÉ, W. DU T. & POLSON, A. (1957). **Interference between active and ultraviolet-irradiated Rift Valley fever virus.** — *J. gen. Microbiol.* **16,** 491-497. [Authors' summary modified.] **2388**

Interference was demonstrated with pantropic Rift Valley fever virus in appropriately ultraviolet-irradiated mouse serum in which a residuum of active virus remained. The degree of interference varied with the amount of irradiation. With the smallest doses of radiation, which left a fair amount of active virus, the only manifestation of interference was a prolonged incubation period. With virus which had received optimal irradiation, concentrated inocula elicited no symptoms, but the same material diluted produced the typical fatal illness. With intermediate doses of radiation virus suspensions showed interference, but many of the mice developed signs of neurological involvement after a prolonged incubation period. Virus recovered from the brains, however, was the unaltered pantropic variety. The distribution of the virus in mice was determined. It is suggested that the residual live virus multiplies in a limited number of liver and other susceptible cells not protected by the interference effect. The late neurological manifestations are attributed to this new virus and the lesser affinity of the brain cells for the interfering inactivated virus. Many of the mice which survived inoculation of concentrated irradiated virus were immune to subsequent infection with 100 m.l.d. This is considered to be due to a latent infection initiated by the residual live virus. Virus subjected to prolonged irradiation probably loses its immunizing power because of complete inactivation rather than destruction of its antigenicity.

I. PALMER, A. C. (1957). **Vacuolated neurones in sheep affected with scrapie.** — *Nature, Lond.* **179,** 480-481. **2389**

II. ZLOTNIK, I. (1957). **Vacuolated neurones in sheep affected with scrapie.** — *Ibid.* 737. **2390**

I. P. described bodies which he found inside neurone vacuoles and occasionally in non-vacuolated neurones of eight sheep affected with scrapie. These bodies occurred in "Celloidin", in frozen and in paraffin sections, being spheroidal and 2–12 μ in diam. They were most effectively stained with eosin or phloxine, and sometimes contained small eosinophilic granules. He described other staining reactions. P. had not found such vacuoles in normal sheep.

II. Z. points out that the failure of Palmer [I. above] to find the bodies in normal sheep is in contrast to the work of (i) Zlotnik & Rennie [*V.B.* **27,** 1757], who described just such bodies in a high proportion of the vacuoles

of normal sheep and (ii) Brownlee & Wilson [*V.B.* **4**, p. 105], who described eosinophilic bodies in non-vacuolated cells of the spinal ganglia of healthy sheep and of sheep affected with louping-ill. Z. described the staining reactions of two differing bodies (other than mitochondria and Golgi bodies) which he had been able to demonstrate in the neurones of the medulla of both healthy sheep and of sheep with scrapie.—H. Scott McTaggart.

I. Ivanov, X., Zhelev, V. & Enchev, S. (1956). **[Morphological changes in swine fever with reference to diagnosis. V. Pancreas.]**—*Izv. Inst. eksp. vet. Med., Sofia* **4**, pp. 169-178. **2391**

II. Ivanov, X., Zhelev, V. & Trifonov, S. (1956). **[Morphological changes in swine fever with reference to diagnosis. VI. Adrenal glands. VII. Urinary tract and sexual organs.]**—*Ibid.* pp. 179-195 & 197-212. **2392**

III. Ivanov, X., Zhelev, V. & Enchev, S. (1956). **[Morphological changes in swine fever with reference to diagnosis. VIII. Stomach and intestines.]**—*Ibid.* pp. 213-230. [In Bulgarian. Abst. from German and Russian summaries. For previous parts, see *V.B.* **25**, 2397 & 3642.] **2393**

I–III. A detailed account of macroscopic and histological changes in some 150 pigs killed 4–6 days after artificial infection. There are figures for the incidence of the commonest changes—hyperaemia, petechiae and lymphocytic infiltration. In the urogenital tract the simultaneous occurrence of lymphocytic infiltration, petechiae and hyperplasia and dystrophy of the epithelium of the mucous membranes was considered to be diagnostic for swine fever. In the adrenal glands, hyperaemia of the border zone between the cortex and medulla was visible microscopically in 57% of cases. This change was not observed in healthy pigs and was stated to be rare in other diseases.—R.M.

Brown, R. G., Goret, P., Thiéry, J. -P. & Lucas, A. (1957). L'immunisation du porc contre la peste porcine à l'aide d'un virus vivant modifié (lapinisé). **[Immunization against swine fever using lapinized virus.]**—*Bull. Off. int. Epiz.* **47**, 74-84. **2394**

All of 92 pigs resisted exposure to swine fever on an infected farm, when, 4 days after arrival, they received 40 ml. of antiserum i/p, followed 6 days later by 2 ml. of lapinized virus vaccine i/m, or the antiserum and lapinized virus simultaneously. The 19 control animals died. In a second trial, on a disinfected farm, 30 pigs received vaccine alone, 32 vaccine and aureomycin in the food for 5 days (200 g./1000 kg. of food), and 28 had vaccine and 15 ml. of antiserum simultaneously. Swine fever broke out in the first 2 groups, but most of the affected animals were cured by daily i/m injections of sulphamerazine. Fifteen days after vaccination 3 pigs from each group were challenged with virulent virus. All remained healthy, while 2 of the 3 controls died. The authors recommend simultaneous inoculation of vaccine and antiserum against swine fever.—M.G.G.

Mihăiţă, S., Alboiu, M., Simon, M. D. & Bîrnaure, G. (1956). Influenţa căldurii asupra serului antipestos porcin. **[Influence of heat on swine fever hyperimmune serum.]**—*Anu. Inst. Seruri Vaccin. Pasteur, Bucureşti* **1**, pp. 53-64. [In Roumanian. French, German and Russian summaries. Abst. from French summary.] **2395**

Exposure of swine fever hyperimmune serum to strong sunlight (8° to 55°C.) for 4–13 days halved its protective value, heating to 60°C. for 60 min. reduced it by 34%, and holding it at a temp. of 37°C. in the dark for 30–50 days or at room temp. in indirect light for 36 days reduced it by about 17%. All 4 treatments increased its viscosity, cloudiness and sediment. The pH was unchanged.—M.G.G.

Gheorghiu, I., Mihăiţă, S., Oncioiu, P., Albu, T., Popa, M. & Alboiu, M. (1956). Contribuţii la studiul imunităţii în pesta porcină. **[Immunity in swine fever.]**—*Anu. Inst. Seruri Vaccin. Pasteur, Bucureşti* **1**, pp. 17-30. [In Roumanian. French, German and Russian summaries. Abst. from French summary.] **2396**

Various schedules of immunizing pigs against swine fever were tested: hyperimmune serum alone, serum adsorbed on aluminium hydroxide, serum and vaccine simultaneously, serum followed 7–28 days later by vaccine, vaccine followed 7 days later by serum, and vaccine followed by serum 14 days later. Only the last method protected all the animals against challenge.—M.G.G.

Jörg, A. (1957). Über Vorkommen, Diagnose und fleischbeschauliche Beurteilung von Infektionen mit Bacterium suipestifer bei Viruspest. **[Occurrence and diagnosis of *Salmonella cholerae-suis* infection in pigs with swine fever and its significance in meat inspection.]**—*Schweiz. Arch. Tierheilk.* **99**, 99-104. [English, French and Italian summaries.] **2397**

Out of 8,000 pigs from 198 herds

slaughtered at Zürich for the control of swine fever during the past five years, *S. cholerae-suis* was isolated from 320. It was present in the muscle of one quarter of the 320 pigs, and these carcasses were condemned. When the organism was found only in the organs, the organs were destroyed and the carcass was passed for consumption.—R.M.

SZURMAN, J. & LARSKI, Z. (1957). Próby oczyszczania wirusa choroby cieszyńskiej świń (encephalo-myelitis enzootica suum) oraz przeoiwciał surowicy. **[Purification of Teschen disease virus.]**—*Méd. vét., Varsovie* **13,** 139-142. [In Polish. English and Russian summaries.] **2398**

Ethoxy diaminoacridine lactate ("Rivanol") was used for purification of Teschen disease virus. It disrupts the colloidal system of pig serum and combines with the serum albumin and alpha globulins. This enables concentration of the antibodies in pig serum. These findings may form a basis for serological work on Teschen disease. A lipid-free suspension of brain tissue from pigs affected with the disease contains globulins and the virus. "Rivanol" forms a complex compound with the virus, which can be recovered from this compound by elution with a 10% solution of NaCl.—M. GITTER.

MONBET, J. & PLACIDI, L. (1956). Sur une infection épizootique du porc d'allure clinique pneumo-neurotrope. Transmission au porcelet. **[Transmission to piglets of a pneumo-neurotropic infection of swine.]**—*Bull. Acad. vét. Fr.* **29,** 307-314. **2399**

Two piglets placed in direct contact with a naturally infected pig developed a temperature reaction and died 8 and 17 days later. P.M. findings were similar to those in the naturally infected animal—pulmonary abscesses and adhesions. A suspension of infected brain tissue was injected intracerebrally into 2 piglets. This was followed by a temperature reaction; death supervened 8 and 17 days later. The only P.M. findings were pulmonary lesions. Intracerebral inoculation was also practised on white mice, g. pigs and rabbits. All the animals, except 2 mice which died the day after, appeared normal a month later. The nature of the causal virus, to which pneumotropic and neurotropic properties are attributed, is discussed.

—T.E.G.R.

DZIŻYŃSKI, A., MARKIEWICZ, K., MARKIEWICZ, Z. & STANKIEWICZ, W. (1956). Działanie soku cebuli (*Allium cepal L.*) w przebiegu nosówki psów. **[Therapeutic value of onion juice in dog distemper.]**—*Roczn. Nauk rol. Ser. E.* **67,** 503-516. [In Polish. English and Russian summaries.] **2400**

38 dogs suffering from distemper were given onion juice by mouth 3 times daily for 7–10, or in some cases for 12–24 days. In 32 cases which responded to treatment improvement was noted after 2–4 days. The authors are of the opinion that onion juice has an antibiotic effect on the distemper virus and the secondary bacterial invaders; they quote instances from human medicine where onion juice proved a satisfactory treatment.—M. GITTER.

MANSI, W. (1957). **Serological investigation of myxoma and fibroma viruses. I. Complement-fixation test.**—*J. comp. Path.* **67,** 208-216. [Author's conclusions slightly modified.] **2401**

Complement-fixing antigen of myxoma virus was prepared directly from infected rabbits for diagnostic purposes. Such antigen was of a considerably higher concentration and much cheaper to produce than that prepared from chorio-allantoic membranes. A study of the distribution of the antigen in different tissues of dead, recovered and immune rabbits was made. A comparative study of myxoma and fibroma virus antigens was carried out.

ZEBROWSKI, L. (1956). Badania nad zmiennością właściwości chorobotwórczych wirusa rzekomego pomoru drobiu. I. Zmienność właściwości chorobotwórczych wirusa w toku pasaży naturalnych. **[Changes in the virulence of Newcastle disease virus. I. In natural passages.]**—*Roczn. Nauk rol. Ser. E.* **67,** 483-488. [In Polish. English and Russian summaries.] **2402**

In 2 experiments involving 25 and 38 passages by contact no change in the virulence of the virus was noted.—M. GITTER.

BANG, F. B. & FOARD, M. (1956). **The serology of Newcastle disease virus infection. I. The reaction between various sera and the virus. II. The antigenic relationships of Newcastle virus. III. Prevalence of antibody against Newcastle in individuals closely exposed to the virus and in the absence of conjunctivitis.**—*J. Immunol.* **76,** 342-347; 348-351 & 352-356. **2403**

Neutralization of Newcastle disease virus in chick embryos by chicken, rabbit and human sera revealed differences in action between the three species. Chicken serum had a greater protective action than human or rabbit serum.

Cross-neutralization between the viruses of mumps and N.D. did not occur with serum from rabbits and chickens, but mumps virus was neutralized by some human sera having a high titre of N.D. antibodies. Sera from human beings infected with N.D. virus or exposed to infection in laboratories or on poultry farms were shown to contain neutralizing antibodies. Four workers in a poultry plant developed antibodies during their first year of work.—R.M.

HILL, W. K. W. (1957). Untersuchungen über den zeitlichen Ablauf der Vermehrung des immunisierenden Antigens von Newcastle Disease Virus in Teilen des bebrüteten Hühnereies. **[Studies of the increase of immunizing antigen of Newcastle disease virus in incubated hen's eggs.]**—*Schweiz. Z. allg. Path.* **20,** 203-210. [English and French summaries.] **2404**

The titre of haemagglutinating antigen in embryonated eggs inoculated with N.D. virus, determined at intervals of 3 hours during 42 hours after infection, was compared with the immunizing power of vaccines prepared at the same intervals of time. The course of both phenomena was parallel. The haemagglutination test served as a useful control in vaccine production from eggs.—R.M.

PLACIDI, L. (1956). Accidents consécutifs à la vaccination contre la maladie de Newcastle. Influence de la température ambiante. Rôles respectifs du vaccin et de l'hôte. **[Accidents following use of Newcastle disease vaccines. Effect of temperature on the vaccine and on the vaccinated fowls.]**—*Bull. Off. int. Epiz.* **45,** 393-408. **2405**

Newcastle disease, diagnosed clinically and confirmed by P.M. findings and by isolation of the virus, occurred among fowls after inoculation with a formolized adsorbed chick embryo vaccine. The vaccine was tested on immunized and on unvaccinated birds, keeping untreated birds in contact, as controls. No ill effects were observed among the immunized birds and controls, while there were clinical manifestations and death among the newly vaccinated fowls. Samples of the vaccine stored at 37°C. and at room temp. (28° to 32°C.) were tested. No ill effects were produced by the vaccine kept at 37°C., while clinical symptoms and death followed the use of samples kept at room temp. for varying periods. It is considered that if not kept at the right temp., the vaccine may lose some of its immunizing properties; there may even be a dissociation of the vaccinal complex leading to reactivation of the virus; and, environmental temp. may affect the susceptibility of the fowls.—T.E.G.R.

MARKHAM, F. S., PATTON, W. H., HAMMAR, A. H., BOTTORFF, C. A., GINGHER, P. E., PERRY, E. D. & TESAR, W. C. (1957). **A second flock history after immunization against Newcastle disease and infectious bronchitis and observations on chronic respiratory disease.** — *Poult. Sci.* **36,** 150-159. [Authors' summary modified.] **2406**

A laying flock that was brooded and reared on an isolated island is described. The birds were vaccinated with a combined Newcastle disease–infectious bronchitis vaccine at 8 days of age. Their antibody levels for both viruses were determined at intervals for about a year. In the absence of exposure, substantial levels of antibody were maintained and increases associated with reproductive activity were observed. At the end of the year the flock was exposed to infectious bronchitis virus. The resulting inapparent infection reactivated chronic respiratory disease which was latent in the flock. The observations and implications are discussed in relation to vaccines, immunity and the general problem of chronic respiratory disease.

PETERSON, E. H., WHITE, E. A. & LUTHER, H. G. (1957). **Oxytetracycline in the therapy of infectious synovitis in experimentally infected chickens.** In "Antibiotics Annual 1956-1957" pp. 581-583. [New York: Medical Encyclopedia Inc.] [Authors' summary modified.] **2407**

Oxytetracycline administered continuously at 100 or 200 p.p.m. in the mash effectively controlled mortality and maintained weight gain in chicks experimentally infected with the agent of synovitis. Symptoms were already present when treatment began. Equivalent results were obtained with a single injection of 50 mg. of the drug in oily suspension. The same dose of an aqueous solution of the drug was less effective.

WILLS, F. K. & MOULTHROP, I. M. (1956). **Propagation of avian encephalomyelitis virus in the chick embryo.**—*Sthwest. Vet.* **10,** 39-42. [Authors' conclusions modified.] **2408**

Avian encephalomyelitis virus was propagated in chick embryos by yolk sac inoculation of infective brain suspensions. Seventeen embryo passages were made. The titre of tissues harvested from the 16th passage was 10^{-4}. The embryos had encephalomalacia and muscular dystrophy similar to that described by Jungherr *et al.* [*V.B.* **26,** 3818].

ROOTS, E. & ROTT, R. (1957). Ein Beitrag zur Reindarstellung des Psittakose-Virus durch Behandlung mit Trypsin. **[Studies on the purification of the psittacosis virus with trypsin.]**—*Zbl. VetMed.* **4**, 261-264. [English, French and Spanish summaries. English summary slightly modified.] **2409**

A method decribed of purifying psittacosis virus for use in the electron microscope. The material to be examined (fluid from infected eggs) was centrifuged at low speed (3 min. at 2000 r.p.m.). The supernatant was washed several times at 4200 g. The resulting precipitate was treated with trypsin for 3 hours at 40°C. After several additional washings the preparation was ready for use. Specimens prepared by this method were free from contamination. No alterations due to this treatment could be detected in the virus.

IMAGAWA, D. T. & ADAMS, J. M. (1957). **Immunological relationship between measles and distemper viruses.** — *Fed. Proc.* **16**, 360. **2410**

Dog distemper immune serum from ferrets inhibited cytopathogenesis by measles virus in cell cultures. Sera from these ferrets before immunization and from normal ferrets did not. The effect of heated immune serum was enhanced two to fourfold by the addition of complement. Inoculation of measles virus gave some protection to ferrets against challenge with virulent distemper virus, as shown by prolonged incubation periods and modified course of the disease. Nine of the 21 animals survived, whereas 14 of the 15 controls died.—M.G.G.

I. ALFÖLDI, L. (1957). **Isolation and characterisation of some *Pseudomonas pyocyanea* bacteriophages.**—*Acta microbiol. Acad. Sci. Hung.* **4**, 107-118. [In English.] **2411**

II. ALFÖLDI, L. (1957). **Frequency of lysogenic strains in *Pseudomonas pyocyanea*.** — *Ibid.* 119-122. [In English. Author's summaries modified.] **2412**

I. Three different bacteriophages of *Ps. pyocyanea* were isolated from sewage water and designated as strains F1, F2, and F3. Separation of the strains was possible only on lactate agar as strain F3 failed to form plaques on horse meat–peptone agar. Plaque morphology, bacterial spectrum, antigenic structure, sensitivity to heat and citrate, and the one step growth cycle of all 3 strains were determined. Each of the 3 phages represents an independent pyocyaneus phage species. A mutant of the F3 strain forming clear-cut plaques was demonstrated.

II. The frequency of the lysogenic property was studied in 50 strains of *Ps. pyocyanea* of different origin. By increasing the number of strains used as indicators it was demonstrated that all 50 strains were lysogenic.

NIŽNÁNSKY, F. & GMITTER, J. (1956). Beitrag zur Epizootologie der Schafcoxiellose und zum Vorkommen natürlicher Infektionsherde. **[Epidemiology of Q fever in sheep and the occurrence of natural reservoirs of infection.]** —*Arch. exp. VetMed.* **10**, 749-758. **2413**

In a survey of the incidence of Q fever in Slovakia, 7% of 15,694 sheep, 8% of 737 cattle and 28% of 64 goats were positive to the complement-fixation test in a titre of 1:32. The incidence was higher in areas where sheep were imported. *Rickettsia burneti* was demonstrated in various materials from infected animals and also in the tick, *Dermacentor marginatus*.

H. SCOTT MCTAGGART.

BROWN, R. D. (1956). **Q fever—veterinary aspects.**—*East Afr. med. J.* **33**, 441-445. **2414**

Positive reactions to the c.f. test for *R. burneti* antibodies were observed in 3 out of 4 dogs, none of 17 horses, 4 of 20 camels, 96 of 283 goats and 14 of 190 cattle. *R. burneti* infection is considered to be widespread in Kenya.

—M.G.G.

JADIN, J. & GIROUD, P. (1956). Les avortements des caprins de la région de Kisenyi (Ruanda-Urundi, Congo Belge), ne sont pas dus à *Brucella melitensis* mais au groupe néo-rickettsien. **[Caprine abortion caused by *Rickettsia* in the Belgian Congo.]**—*Bull. Soc, Pat. exot.* **49**, 597-599. **2415**

Serum samples from 10 recently aborted goats were negative for *Brucella melitensis* and *Br. abortus* though one was positive at 1:200 and another was doubtful at 1:200 (these values, however, are not considered significant). On the other hand 2 samples were positive for Proteus X (X. 19 and OX. 2) at 1:200. None was positive for *Br. tularensis*. Strain V. 14 was agglutinated by 7 sera and Strain X. 14 by 3. Only one sample agglutinated T. 13.

—T.E.G.R.

See also abstr. **2419** (prevention of encephalomyelitis by homologous spinal cord); **2563** (report, Canada); **2564** (Yearbook, New South Wales; **2566 & 2567** (report, S. Rhodesia); **2568** (report, Gold Coast).

IMMUNITY

Weber, K. H. (1956). Ein Beitrag zur Konservierung des Komplements mittels der Tiefkühlung sowie der Vakuumgefriertrocknung. **[Preservation of complement by deep freezing and freeze-drying.]**—*Inaug. Diss., Giessen* pp. 56. **2416**

G. pig sera were treated by 3 different methods for the preservation of complement: freeze-drying, and storage in evacuated ampoules at room temp. or at 1°C.; freezing at −18°C.; and mixing with an equal quantity of a solution containing 10% potassium sulphate and 4% boric acid, and storage at 1°C. The best method of preservation was freeze-drying; after 18 months the loss of activity was 20–23% when stored at 1°C., and 50% when stored at room temp. Frozen complement lost about 32% of its activity in 6 months, and 58% in 12 months. The rate of freezing and thawing was immaterial. Chemically preserved complement lost about 44% of its activity in 6 months and 60% in 9 months. In the c.f. test results obtained with the preserved sera up to 6 months old were similar to those with fresh sera.

—M.G.G.

Bridges, R. A., Condie, R. M., Zak, S. J. & Good, R. A. (1957). **Cellular basis of antibody formation: development during neonatal period.**—*Fed. Proc.* **16,** 352. **2417**

Studies in new-born and month-old children and rabbits indicated that at birth they have no immunological powers and that the morphological basis for this is the absence of plasma cells.—M.G.G.

Juszkiewicz, T. (1957). Magnez, układ properdynowy i ich rola w obronności ustroju. **[Role of magnesium and properdin in the defence mechanism of the body.]**—*Méd. vét., Varsovie* **13,** 88-94. [In Polish.] **2418**

A review of the literature.—M. Gitter.

Condie, R. M., Kelly, J. T., Campbell, B. & Good, R. A. (1957). **Prevention of experimental encephalomyelitis by prior injections of homologous spinal cord.**—*Fed. Proc.* **16,** 24. **2419**

Sixteen rabbits were given repeated s/c injections of homologous spinal cord for 4 months; 45 days after the last injection they received spinal cord plus adjuvant; 2 animals became paralysed but none died. A second group of 15 rabbits received 2·5 g. of spinal cord at the time of injection of spinal cord and adjuvant; of these 14 became paralysed and 12 died. A third group of 15 received spinal cord and adjuvant alone; 12 became paralysed and 8 died. Daily s/c injection of spinal cord for 20 days after the injection of spinal cord and adjuvant did not prevent death or paralysis. It was concluded that experimental allergic encephalitis is prevented either by immunization or by "immunological paralysis".—M.G.G.

Aver'yanova, L. L. (1957). **[Influence of antibiotics on immunologocal reactivity of the body.]**—*J. Microbiol., Moscow* **28,** No. 4. pp. 37-38. [In Russian.] **2420**

The author stated that prolonged administration (1–3 years) of penicillin, biomycin and terramycin had no detectable influence on the capability of dogs to form agglutinins to *S. typhi*.—R.M.

Uhr, J. W., Pappenheimer, A. M., Jr. & Yoneda, M. (1957). **Delayed hypersensitivity. I. Induction of hypersensitivity to diphtheria toxin in guinea pigs by infection with *Corynebacterium diphtheriae*.**— *J. exp. Med.* **105,** 1-9. **2421**

Uhr, J. W., Salvin, S. B. & Pappenheimer, A. M., Jr. (1957). **Delayed hypersensitivity. II. Induction of hypersentitivity in guinea pigs by means of antigen–antibody complexes.**—*Ibid.* 11-24. **2422**

I. The authors discussed work which showed that when living diphtheria bacilli of a toxigenic strain are injected i/d into g. pigs, and horse antitoxic globulin is given either before or afterwards, delayed hypersensitivity of the tuberculin type develops to challenge with diphtheria proteins.

II. This paper dealt with a method evolved for the induction of the delayed hyperimmune state, using single protein antigens. Toxigenic and non-toxigenic strains were used. After injection with the latter the animals became sensitive to proteins common to both toxigenic and non-toxigenic strains, but were not sensitive to toxin. With g. pigs given the toxigenic strain sensitization to toxin occurred even when antitoxin was given 24 hours beforehand. Prior injection of antitoxin prevented the development of necrotic lesions that characterize the positive "virulence" test. There was no cross reactivity between toxin and its non-toxin counterpart, although cross sensitization to other diphtherial proteins common to both toxigenic and non-toxigenic variants did occur.

A minute amount of toxoid or of toxin, comparable to that which might be liberated during infection, might induce the hypersensitive

state if injected in the form of a complex with excess antitoxin.

It is probable that all methods of active immunization will induce the tuberculin type of sensitization to some extent, since antibody will combine with antigen to form complexes. The authors are of the opinion that the chances of developing hypersensitivity during immunization will be increased considerably following booster doses of antigen, particularly if adjuvants are used, if the booster dose is given i/d and if the individual already possesses a sufficiently high titre of circulating antibody.

It was found that one or two μg. of a protein antigen, when complexed with antibody and given i/d, will produce maximum sensitization of the delayed type in experimental animals. When very much larger amounts of protein (1 mg. or more) are used the probability of producing sensitivity at the same time to traces of impurity becomes very great. This work may facilitate analysis of the mechanisms underlying the delayed hypersensitive state.

—W.A.P.

KHOMYAKOV, A. M., MENDELEVICH, M. M. & GONIN, S. L. (1957). **[Dehelminthization as a factor in stimulating immunogenesis in horses producing antitoxic sera.]**—*J. Microbiol., Moscow* **28,** No. 1. pp. 110-114. [In Russian.] **2423**

Most of the horses used for producing serum at the Kazan Institute of Vaccine and Sera were infested with strongyles, 38% of them were infested with ascarids and 12% with oxyurid worms. Anthelmintic treatment consisted of the administration by stomach tube of 10–20 l. oxygen daily for 3 days, or sodium fluoride given mixed with bran at a dosage of 0·02 g./kg. body wt. twice daily for 3 days. There was a considerable increase in the amounts of haemoglobin and antibody in the blood after treatment.—R.M.

HOWARD, J. G., ROWLEY, D. & WARDLAW, A. C. (1957). **Stimulation of non-specific immunity by the 'lipid A' component of bacterial lipopolysaccharide.**—*Nature, Lond.* **179,** 314-315. **2424**

Previous work by Rowley [*V.B.* **26,** 3822] had demonstrated a temporary increase in resistance to bacterial infection following i/v inj. of a minute amount of lipopolysaccharides isolated from Gram-negative organisms. This effect appeared to be due to lipid "A", obtained from the lipopolysaccharide by mild acid hydrolysis. Mice were more resistant to infection with *E. coli* or *S. typhi-murium* if they were injected, 48 hours before infection, with 8–50 μg. of lipid "A" prepared from *E. coli*.—R.M.

BREWER, R. L. (1957). **An allergic condition in Jersey cows.**—*J. Amer. vet. med. Ass.* **130,** 181-182. [Author's summary and conclusions modified.] **2425**

An allergic condition developed in 13 Jersey cows 18 to 24 hours after drying-off. The symptoms were severe urticaria and usually some dyspnoea. Recovery was complete and rapid when antihistamines were given parenterally. Diet, climate, age and husbandry did not appear to be influential factors. The occurrence of the condition in Jerseys suggests that the higher protein content of their milk might be a factor.

See also abstr. **2287** (strangles); **2291** (haemagglutination test); **2309** (E. coli); **2316** (rapid agglutination test for pullorum disease); **2318** (salmonellosis); **2320** (milk test and agglutination test for brucellosis); **2321** (brucellosis); **2322** (diagnosis of brucellosis); **2325** (brucella); **2326** (tryptic enzymes and brucella antigens); **2327** (leptospira); **2333** (Cl. chauvoei); **2336** (Cl. botulinum); **2338** & **2339** (vaccination); **2352** (fluorescent antibodies); **2356** (T. lewisi); **2369** (survey for toxoplasmosis); **2373** (sarcospores and toxoplasms); **2376** (F. & M. disease and vesicular stomatitis); **2377** (rabies); **2378** (Eastern equine encephalomyelitis virus); **2379** (c.f. test for E.I.A.); **2382** (c.f. test for African horsesickness); **2383** (c.f. test for Borna disease); **2385** (bluetongue); **2386** (c.f. test for bluetongue); **2388** (irradiation of Rift Valley fever virus); **2394** (lapinized swine fever virus); **2395** & **2396** (swine fever); **2401** (myxomatosis); **2403** (serology of N.D.); **2404** (N.D.); **2405** (accidents due to N.D. vaccines); **2406** (N.D. and infectious bronchitis); **2410** (relationship between measles and distemper viruses); **2435** (T. hydatigena in lambs); **2451** (visceral lymphomatosis)

PARASITES IN RELATION TO DISEASE [ARTHROPODS]

BORCHERT, A. (1957). Weitere Versuche zur Einschränkung der Häuteschäden bei verdasselten Rindern. **[Attempts to reduce skin damage in warbled cattle.]**—*Mh. VetMed.* **12,** 30-31. **2426**

Forty heifers, that had been exposed to warble infestation at grass during the summer, received six applications of either a dieldrin preparation or a derris preparation in the following winter. Numbers of warble swellings and punctures were reduced in treated areas to 25·8% with the former agent and 12·8% with the latter of the total number of lesions present.

—M. L. CLARKE.

SHISHKOV, V. E. (1957). **[Organization of measures against the warble fly.]**—*Veterinariya, Moscow* **34,** No. 3. pp. 8-12. [In Russian.] **2427**

During the past five years the number of cattle infested with warbles in the R.S.F.S.R. had fallen by only 11·9% (from 64% in 1952

to 52·1% in 1956). About half of the 21 million cattle examined in 1956 had been dressed once or twice with D.D.T.—R.M.

GANSSER, A. (1957). Zur Biologie der Dasselfliege und zur Bekämpfung der Dasselplage durch Abfangen der Dasselfliegen. [**Biology of the warble fly and its control by capture of the adult flies.**]—*Schweiz. Arch. Tierheilk.* **99,** 17-27. [English, French and Italian summaries.] **2428**

G. discussed the biology of *Hypoderma* spp. with particular attention to conditions prevailing in Switzerland, and recommended, as a basis for control, that search should be made for places where adult flies congregate, *e.g.* in July and August, on spring pastures where cattle have been grazed from the end of May to the end of June before being moved to the high Alps. As fertilized females were found to constitute about 5% of the fly population in the area studied, trapping is an important factor in warble control.—M. L. CLARKE.

LIENERT, E. & THORSELL, W. (1956). In-vitro-Hemmversuche am System Wirbelkanallarven– (Hypoderma bovis) – Kollagenase : Kollagen. [**Inhibition *in vitro* of *Hypoderma* larvae by various substances.**] — *Wien. tierärztl. Mschr.* **43,** 746-751. [English, French and Italian summaries.] **2429**

In vitro experiments, based on the collagenase-collagen reaction, were made to test the inhibitory effect of various substances on the spinal larval stage of *H. bovis*. Of 58 substances with affinity for collagenase in the warble and for bovine collagen, inhibition was found with 2 aldehydes, 8 quinones and derivatives, and 1 azo dye (Janus red).—M. L. CLARKE.

GLASGOW, J. P. (1956). **The food of tsetse.**—*East Afr. med. J.* **33,** 462-472. **2430**

Of 21 captured *G. swynnertoni,* 13 had fed on wart-hog, as determined by the method of Weitz [*V.B.* **27,** 1471]. Similar results were obtained with larger samples of this species, and with *G. morsitans*. In every case wart-hog had provided more feeds than any other animal. There is, however, no evidence that these flies could not maintain themselves if wart-hog were to be eliminated. But it seems that this animal would be useful as a bait for capturing tsetse flies and for feeding captive flies. Of 71 captured *G. pallidipes,* 43 had fed on bush-buck. —M.G.G.

THEILER, G. (1956). **Zoological survey of the Union of South Africa. Tick survey, Part IX. The distribution of the three South African Hyalommas or Bontpoots.**—*Onderstepoort J. vet. Res.* **27,** 239-269. [Author's summary modified.] **2431**

H. truncatum (syn. *H. transiens*) occurs in all the drier areas of Africa south of the Sahara. The limiting factor to its distribution is increasing humidity. It is present where the annual rainfall is not more than 20 inches. Above this its presence depends on local climatic variations and micro-habitats. Where the high rainfall is due to heavy thunderstorms it can maintain itself precariously. In the Cape Midlands, with a low rainfall, it tends to be absent from mountain farms having snow in winter. Neither dipping nor the type of vegetation plays a limiting role.

The limiting factor to the distribution of *H. rufipes* in S. Africa is increasing humidity. It is present in areas with up to 20–25 inches of rain yearly. It can maintain itself in areas with up to 30 inches, where the atmosphere is dry, but not in dry areas where there is rain or snow during the winter. Neither dipping nor the type of vegetation plays a limiting role. Data for Central Africa are meagre, but its distribution is limited not only to the drier regions but possibly also to areas with only one rainy season in the year.

H. glabrum is confined to a very restricted area of South Africa. The limiting factors are humidity and vegetation. It is confined to the karoo, which itself is limited by humidity. Ten to twelve inches of rainfall seem to be the critical range; it is present in a few areas with 15 inches, possibly with long intervening droughts. It can exist in marginal karooid areas, provided these have a low annual rainfall.

Since the author is not convinced that *H. glabrum* is synonymous with *H. turanicum,* it was decided to retain Delpy's name.

STONE, B. F. & MEYERS, R. A. J. (1957). **Dieldrin-resistant cattle ticks, *Boophilus microplus* (Canestrini), in Queensland.**—*Aust. J. agric. Res.* **8,** 312-317. [Authors' summary modified.] **2432**

Infestation by ticks in a herd in Queensland could not be controlled by repeated spraying with dieldrin (0·05% wt./vol.). 98% of engorged females of this strain, which fell from an artificially infested beast in the 48 hours following spraying with dieldrin at this conc., laid normal batches of viable eggs. Spraying cattle with "Diazinon" (0·05% wt./vol.), however, readily controlled infestation by this strain.

Laboratory concentration-response tests on a culture of the dieldrin-resistant ticks indicated that the median lethal conc. of dieldrin for the larvae was over 2000 times higher than those

of a reference strain. There was also strong evidence from lab. tests of dieldrin-resistance in the engorged adult female ticks.

PATYK, S. & KUPROWSKI, M. (1957). Nużyca (demodecosis) owiec. [**Demodectic mange in sheep.**]—*Méd. vét., Varsovie* **13**, 12-14. [In Polish. English and Russian summaries.] **2433**

A report on an outbreak in Poland. It involved a flock of 700 sheep and the disease was manifested by pruritus, loss of wool on the back, under the jaws, on the cheeks and at the base of the tail. In these areas the skin was thicker, wrinkled and covered with desquamating epithelium. About 50 animals died in debilitated condition. Apart from numerous *Demodex ovis* a few *Psoroptes ovis* mites were also found. Clipping and dipping seemed to have stopped the outbreak.—M. GITTER.

BACIGALUPO, J. & ROVEDA, R. J. (1954). *Demodex caviae* **n.sp.** — *Rev. Med. vet., B. Aires* **36**, 149-153. **2434**

In the course of an investigation of trichinosis in g. pigs a demodex mite was found in the muscular tissue. Its morphology is described and the designation *Demodex caviae*, Roveda—Bacigalupo, 1953, is suggested.—T.E.G.R.

See also abstr. **2365** (tick-borne diseases); **2413** (reservoirs of Q fever); **2564** (Yearbook, New South Wales); **2566 & 2567** (reports, S. Rhodesia)

PARASITES IN RELATION TO DISEASE [HELMINTHS]

SWEATMAN, G. K. (1957). **Acquired immunity in lambs infected with *Taenia hydatigena* Pallas, 1766.**—*Canad. J. comp. Med.* **21**, 65-71. [French summary.] **2435**

Two Shropshire lambs that became initially infected with *T. hydatigena* at pasture were later shown to have acquired an absolute immunity. In an experimental study a similar resistance was demonstrated in 10 Suffolk lambs, 3 months old, dosed with from 50 to 800 ova and challenged 7 weeks later with a dose of 5,000 ova.
—R. V. L. WALKER.

GINSBERG, A. (1956). **Incidence of hydatidosis in Kenya's slaughter animals.**—*East Afr. med. J.* **33**, 297-300. **2436**

The incidence of hydatidosis in the years 1954 and 1955 was 17·1% and 17·6% respectively in cattle of European breeds, and 46·7% and 41·1% in cattle of African breeds. It was 23·7% and 28·4% in European sheep, and 41·9% and 53% in African sheep. In African goats the incidence was 18% and 15·2%.—M.G.G.

ENZIE, F. D., FOSTER, A. O. & COLGLAZIER, M. L. (1957). **Teniacides in dogs and cats.**—*N. Amer. Vet.* **38**, 119-128. **2437**

An organic antimony compound ("Anthelin"), an organic salt of arecoline and acetarsol ("Drocarbil"), dichlorophen, and arecoline hydrobromide were tested against *Taenia* spp., and *Dipylidium* spp., or both, in 53 dogs and 2 cats. It was concluded that no one compound is clearly superior as a general taeniacide. Arecoline-acetarsol is recommended for *Taenia* spp. and *Dipylidium* spp. in dogs and cats, and arecoline hydrobromide for *Echinococcus granulosus*. Dichlorophen proved of variable efficiency for *Taenia* spp. in dogs and *Taenia* spp. and *Dipylidium* spp. in dogs and cats. "Anthelin" may be the most active agent against *Taenia* and *Dipylidium*, but it is also the most potentially toxic to the host, and is of variable efficiency (0–100%) against ascarids. The efficiency of combinations of nematocides and taeniacides like "Anthol" ("Anthelin" plus toluene) and similar products should be specifically determined by experimental trials.
—D. POYNTER.

SWIERSTRA, D. (1956). [**An investigation on the oxygen consumption of third stage larvae of horse strongyles.**]—*Thesis, Utrecht* pp. 134. [In Dutch. English summary.] **2438**

Oxygen consumption could be calculated in terms of ml./6·56 mg. dry wt. of larvae from the formula $Y = 0{\cdot}14778 + 0{\cdot}89092\ X_1 + 0{\cdot}080534\ X_2$, where Y is the logarithm of oxygen consumption, X_1 the log. of the temp., and X_2 the log. of the time in hours.—R.M.

SWANSON, L. E., STONE, W. M. & WADE, A. E. (1957). **Efficacy of piperazine citrate in removing worms from the alimentary canal of cattle.**—*J. Amer. vet. med. Ass.* **130**, 252-254. [Abst. from authors' summary.] **2439**

A single dose of piperazine citrate soln. equivalent to 7·1 or 14·2 g./100 lb. of anhydrous piperazine eliminated all mature *Oesophagostomum radiatum* from 10 calves. 97·6% of Cooperia spp. were eliminated with 14·2 g./100 lb. and 76·4% with 7·1 g./100 lb. The respective percentages of other nematodes eliminated with the same two doses were:— *Haemonchus contortus*, 15·1 and 8·0; *Ostertagia ostertagi*, 71·9 and 81·3; *Trichostrongylus axei*, 2·1 and

16·4; *Bunostomum phlebotomum*, 33·9 and 12·1; *Trichuris discolor*, 11·6 and *nil*; and *Nematodirus* spp., 55·5 with 14·2 g. These doses were non-toxic.

GORDON, H. McL. (1957). **Studies on anthelmintics for sheep. Dihydroxyanthraquinones and some other quinones.**—*Aust. vet. J.* **33**, 39-42. **2440**

The compound 1:8 dihydroxyanthraquinone was highly effective against parasites of the large intestine of the sheep in doses between 1 g. and 5 g. Its effect on *Trichostrongylus* spp. was slight, but doses of 3 g. or more were effective against *Haemonchus contortus*. The anthelmintic effect was independent of the purgative effect. Some pathological changes due to the drug were observed in the liver and kidney, but clinical symptoms were absent. For general anthelmintic treatment of sheep the compound has no advantage over phenothiazine except for its effect on *Trichuris* spp. None of several related compounds tested had useful anthelmintic activity.—R. I. SOMMERVILLE.

CORCORAN, J. F. (1957). **A method of control of "hoose".**—*Irish vet. J.* **11**, 85. **2441**

C. maintains that hoose can be controlled by running cows and calves together on land which has been grazed by cows only in the preceding months. Farmyard manure must not be spread over the pasture but it should be thoroughly grass harrowed. He considers that the adult resistant cattle ingest and destroy the larvae of *Dictyocaulus viviparus*, thereby cleansing the pasture.—J. H. ROSE.

I. ROSE, J. H. (1957). **A record of the lungworm *Cystocaulus ocreatus* in sheep in Great Britain.**—*Nature, Lond.* **179**, 925. **2442**

II. ROSE, J. H., MICHEL, J. F. & HARRISS, S. T. (1957). **Lungworms of British sheep.**—*Vet. Rec.* **69**, 461. **2443**

I. A fourth lungworm, in addition to the 3 species hitherto recorded as occurring in sheep in G. Britain, was found in sheep lungs and identified as *Cystocaulus ocreatus*. The worm was first observed in slaughter sheep from various parts of the country between Devon and Northumberland, and more recently in sheep on the Wiltshire Downs.

II. This is a brief note on apparently new species of lungworms of British sheep. *Cystocaulus ocreatus* has been recognized for 3 years. Other species require further examination. One which has been definitely identified is *Neostrongylus linearis*—a fine thread-like worm, similar in its general characteristics to *Muellerius capillaris*, and found in the lung parenchyma and sometimes in the bronchioles. The females are 13–16 mm. × 0·03–0·035 mm. and have a cuticular expansion round the vulva which distinguishes them from *M. capillaris*. The males are 5·5–6 mm. × 0·022–0·028 mm. with a well defined bursa and two characteristic spicules—long, slender and unequal in length (320 μ and 160–170 μ). The crura of the gubernaculum and the telemon are easily visible. The first stage larvae are smaller than those of *M. capillaris*. —T.E.G.R.

SCHÜRMANN, E. & GREUEL, E. (1957). Vergleichende Untersuchungen über die Wirksamkeit und Verträglichkeit verschiedener Wurmmittel bei der Bekämpfung der Ascaridiasis des Geflügels. Erste Mitteilung. Zweite Mitteilung. **[Comparison of the efficacy and tolerance of different anthelmintics in the control of ascaridiasis in fowls and pigeons. Parts I & II.]**—*Arch. Geflügelk.* **21**, 16-28 & 29-32. [English summaries.] **2444**

Phenothiazine and "Vermizyn" [*V.B.* **23**, 1988] were ineffective against massive infections by *Ascaridia galli* in fowls. Piperazine citrate, given by mouth in doses of 0·5 to 1 g. per bird, was effective; in doses of 0·25 g. per bird, it was equally effective against ascarid infestations in young pigeons.—W. G. SILLER.

KEMPER, H. E. (1957). **Filarial dermatosis of sheep.**—*J. Amer. vet. med. Ass.* **130**, 220-224. **2445**

A dermatosis of sheep grazing above 6,000 ft. in New Mexico, due to the presence in the skin of the microfilarial form of the blood worm *Elaeophora schneideri* is described. The life-history and intermediate host are unknown, but various species of deer are apparently the natural hosts and act as a reservoir of infection. No lesions are found in deer, but sheep develop lesions on the head, abdomen and feet, which become intensely itchy and are damaged by scratching and rubbing, producing raw, bleeding, granulating areas containing numerous small pustules. The presence of the adult forms in the arterial system is not associated with any lesions or symptoms. Diagnosis by examination of deep skin scrapings for microfilariae is not always satisfactory, the finding of the adult forms at P.M. examination being the method of choice. [See also *V.B.* **27**, 1500.] —H. SCOTT MCTAGGART.

HARDENBERGH, J. G. (1957). **Surgical hemorrhage following castration of pigs wormed with sodium fluoride: a report.**—*N. Amer.*

Vet. **38**, 41. **2446**

Two groups of boars of similar hereditary origin were castrated. In one 27 out of 28 were dead within 12 hours but in the other no deaths occurred. The groups shared a common shelter and pen divided by a fence. Identical rations were fed and there was no access to sweet clover or any mouldy food. P.M. examination revealed severe anaemia, slightly enlarged spleen and abundant internal haemorrhage of unclotted blood. The possibility of "Warfarin" poisoning was denied by the owner but it was revealed that the affected group had received, a week before castration, 1% of NaF in dry ground feed for a period of 24 hours, the other group being untreated. Although the condition could not be confirmed experimentally the author regards the addition of NaF as having a definite bearing on the case.—D. POYNTER.

UENO, H., ISHIHARA, T., TSUNODA, T. & OGATA, T. (1954). **Ovicidal efficiency by means of chemicals. I. Ovicidal efficiency on the eggs of *Ascaris suum* and *Fasciola hepatica* by dinitro alkyl phenol derivatives.**—*Abstr. Proc. Suiyokai, Tokyo* 1956. pp. 33-34. [In English.] **2447**

Derivatives of 2,4-dinitro-6-cyclohexylphenol and of 2,4-dinitro-6-cresol were studied. In each group the emulsion (diluted 1:4,000–1:8,000 and 1:64,000–1:96,000 respectively) was considered highly effective against the eggs of pig ascarids. The embryonation rate of the eggs varied directly with the rate of dilution of 2,4-dinitro-6-cresol. The eggs of *F. hepatica* were less resistant to this compound of which an emulsion (diluted 30,000–150,000 times) inhibited the formation of miracidia in 15 min.

—T.E.G.R.

See also abstr. **2334** (Moniezia expansa and enterotoxaemia); **2423** (helminths in serum horses); **2564** (Yearbook, New South Wales).

SPONTANEOUS AND TRANSMISSIBLE NEOPLASMS AND LEUCAEMIAS [INCLUDING FOWL PARALYSIS]

COTCHIN, E. (1957). **Neoplasia in the cat.**—*Vet. Rec.* **69**, 425-34. [Author's summary copied *verbatim*.] **2448**

An account is given of 464 tumours from cats, with particular reference to 328 malignant tumours whose origin was known. Of these, 179 were sarcomas, and 149 carcinomas. The important malignant tumours were: squamous-cell carcinoma of the upper alimentary tract (62 cases), sarcoma of the intestine (31), adenocarcinoma of the mammary gland (38), malignant tumours of the lymphatic system and spleen (mesenteric node 25, spleen five, anterior mediastinum seven, and lymphatic leukosis 10), and sarcomas of bones (38) and kidneys (19). Comparisons and contrasts are made with the important malignant tumours of man and of dogs, and some speculations on the causes of malignant tumours in cats are indulged in.

ŻULIŃSKI, T. & SZUPERSKI, T. (1957). Zakaźna brodawczyca (*Papillomatosis infectiosa*) jamy ustnej u lisów srebrzystych. **[Oral papillomatosis in silver foxes.]**—*Méd. vét., Varsovie* **13**, 73-75. [In Polish, English and Russian summaries.] **2449**

In an outbreak involving 60% of silver foxes on a farm both cubs and adults were affected. The outbreak was infectious and was introduced on to another farm through sale of one animal. All infected foxes were destroyed except one pregnant female which subsequently recovered spontaneously. The lesions varied in size from that of a millet seed to that of a hen's egg and histologically were papillomata.

—M. GITTER.

GILLMAN, T., HATHORN, M. & LAMONT, N. McE. (1957). **Alloxan as a possible therapeutic agent for primary carcinoma of the liver.**—*Lancet* **272**, 80-81. **2450**

A brief note to arouse interest in the idea that alloxan might be used in the treatment of primary carcinoma of the liver. Evidence has been produced that the induction of hepatomas by feeding azo-dyes in rats is almost entirely prevented by the induction of alloxan diabetes and that inhibition of tumour growth or reduction in mortality in rats given carcinoma implants occurs after such treatment. Similarly, diabetes induced in rats by pancreatectomy has been reported to suppress tumour growth. In the authors' four cases, all in the advanced stages of the disease, there were certain striking results. There was cessation of pain in one, reduction in the size of the liver in three, extensive sclerosis in both primary and secondary tumours in three, unusually long survival in one, and, in one the absence of hyperglycaemia and glycosuria after alloxan administration.

—W.A.P.

BURMESTER, B. R., WALTER, W. G. & FONTES, A. K. (1957). **The immunological response of chickens after treatment with several vaccines of visceral lymphomatosis.**—*Poult. Sci.*

36, 79-87. [Authors' summary modified.] **2451**

When fowls, less than one year of age, were given several injections of the fully virulent virus of visceral lymphomatosis by the i/p or i/m route, or only 2 injections when mixed with an adjuvant, their progeny were much more resistant to inoculation with the same virus than were the progeny of the same hens, obtained before immunization, or the progeny of untreated hens. The same virus preparations, when killed by the addition of formalin, or when treated with beta-propiolactone, provoked an immune response in the hens which resulted in passive immunity in the progeny which was significant, although less than that obtained with the live virus preparation. The vaccination procedures also caused a marked reduction in the development of osteopetrosis in the progeny inoculated with strain RPL 12, thus providing evidence that antibodies to that disease were also produced.

See also abst. **2563** (report, Canada).

NUTRITIONAL AND METABOLIC DISORDERS

ANON. (1957). **Soil food, and health. A public declaration.**—*Lancet* **272,** 152-153. **2452**

This is a statement sponsored by more than 400 medical and dental members of the Council of the Soil Association. This body opposes the use of chemical fertilizers, believing that they can be harmful and that compost and dung can provide what is required to produce healthy food crops that will enable animals and human beings to maintain a high grade of health.

The subject was discussed dispassionately by D. P. Hopkins (1945), Chemical Humus and Soil. London: Faber & Faber Ltd. His conclusion was that, with existing techniques, the provision of compost for the fertilization of crops is economically impossible and that arguments about dangers from the use of chemical fertilizers will not stand scientific scrutiny. The subject was debated at the Royal Society of Medicine [(1953). *Proc. R. Soc. Med.* **46,** 791] and, roughly, the same conclusion was reached. The views of those who foster this movement to abandon the use of chemical fertilizers appear to be based to a great extent on fervid belief and the term "creed" has been used by its advocates. As a corollary to this belief the need to elaborate economic systems for dealing with sewage so that most of its constituents instead of being discharged into the sea could find their way back on to the land has been debated. This is admirable aspiration, but practical difficulties prevent its fulfilment.

The statement now under consideration is an account of experiments at the Association's farms at Hawley and of the general aims of the Society. The Hawley experiment is designed to study the fertility of the land, the nutrient quality of the produce and the health and productivity of farm animals fed continuously and exclusively on the produce of the farm. The land is farmed in three sections: (1) The "organic" section—self-contained and fertility maintained by leys and composts; (2) A mixed section—fertility maintained by leys and its own animal manure, supplemented by "artificial chemical" fertilizers; (3) A stockless section—fertility by chemical fertilizers only and green manuring. Sections 1 and 2 each maintain their own herd of dairy cattle and their own flock of poultry. It is claimed that the results from Section 1 are outstandingly better than those of the others. The belief is expressed that this type of experiment is not being undertaken elsewhere.

The "declaration" in the statement is of a general nature; it pleads for research on matters concerning soil management in the widest sense and for support for the Hawley experiments to avoid the danger that they may be brought to an abrupt end.—W.A.P.

HICKEY, F. (1957). **Improved pasture and the grazing ruminant. Some metabolic aspects of the pasture/animal association.** — *N. Z. Agriculturist* **9,** No. 3. pp. 3-8. [Author's summary modified.] **2453**

Studies at Ruakura revealed that dairy cows grazed on "improved" New Zealand pasture convert their food into milk at a level of efficiency considerably below that attained by cows overseas fed in accordance with recognized feeding standards. After allowance is made for the energy expended in grazing and associated activity, the total daily nutrients (T.D.N.) intake of 100 pasture-grazed cows is sufficient to maintain 128 animals at the same level of production if fed otherwise than at pasture. H. postulated that the low level of energy-efficiency is accompanied by spendthrift oxidation of unused nutrients.

He reported an experiment in which the heart rate of dairy cows was observed throughout 3 months of mild-lactation; accelerated rates were found to be characteristic of those grazed on "improved" pastures, the mean rate being

77·2 per min. as compared with 64·9 per min. in cows grazed on poorer pastures. The difference in milk yield was 4·3%. Having regard to the T.D.N. consumption estimated in intake-output studies, it was shown that this enhanced heart rate was accompanied by an excess T.D.N. consumption of 30%, in agreement with experiments reported by the U.S. Dept. of Agriculture. H. suggested that the "resting" heat-production of dairy cows can be reasonably predicted from the pulse rate by regression equation: M=52 P—1275, where "M" is the metabolism in Cal. per sq. metre and "P" is the pulse rate.

He concluded that the principal factor involved in the low energy-efficiency of N.Z. pastured cows is a deficient energy intake arising from high levels of pasture protein, and that sporadic or inapparent deficiencies of minerals in the grazings may also contribute, since both factors are known to be capable of accelerating the rate of metabolism.

He discussed the physiological implications of these postulates and emphasized the urgent need for critical examination of many aspects.

Moir, R. J. & Somers, M. (1957). **Ruminal flora studies. VIII. The influence of rate and method of feeding a ration upon its digestibility, upon ruminal function, and upon the ruminal population.**—*Aust. J. agric. Res.* **8,** 253-265. [Authors' summary modified.] **2454**

A single ration made up of commercial sheep cubes (20% protein) together with oat and lucerne chaff was fed to five sheep in five different ways. A Latin square design was used. The daily ration given as a single feed gave the lowest dry matter digestibility and nitrogen retention. It caused the greatest fall in pH values and bacterial counts, and the lowest protozoal counts. The highest ruminal ammonia nitrogen levels were associated with this treatment. The best performance was obtained by feeding the concentrate in the morning and roughage in the afternoon, or feeding the whole ration in four equal portions at 2-hour intervals. The other two treatments—half ration morning and afternoon, or chaff in the morning and concentrates in the afternoon—gave intermediate results. Some implications of the various data are discussed, and the strong influence of feeding pattern is stressed.

Annicolas, D., Delafolie, P., Le Bars, H. & Simonnet, H. (1956). Propriétés pharmacodynamiques des extraits aqueux de feuilles et de farine de luzerne. **[Pharmacodynamic properties of aqueous extracts of lucerne leaves and meal.]**—*Rec. Méd. vét.* **132,** 391-402. **2455**

In vitro, the extract of the leaves inhibited motility of the duodenum of the rabbit and stimulated contraction of the ileum of the g. pig; the extract of the meal inhibited motility of the duodenum of the rabbit and of the rat; it stimulated contraction of the ileum of the g. pig and of the duodenum of the horse and of the dog; in the case of the lamb's duodenum there was a brief inhibition followed by an increase in the amplitude of contractions. The deproteinized extract of the meal was used for *in vivo* experiments. Injected i/v in the anaesthetized dog it caused a slight increase of arterial pressure and stimulated intestinal movement; in the unanaesthetized sheep it inhibited movement of the rumen for over 1 hour— intense diarrhoea set in 20 min. after the onset of inhibition of the rumen movement; in the anaesthetized sheep it caused violent contractions of the caecum. These results are comparable with those following direct administration into the rumen of the unanaesthetized sheep, of lucerne meal or its extract. In both cases there was inhibition of rumen movement—more marked in the case of the meal which remains longer in the rumen while the extract rapidly passes into the other stomachs. The nature of the active principles responsible for these results is discussed.

—T.E.G.R.

Wisman, E. L., Engel, R. W. & Holmes, C. E. (1957). **Indole tolerance and the influence of aueromycin in the growing chick.**—*Poult. Sci.* **36,** 139-143. [Authors' summary modified.] **2456**

Data of two battery experiments indicated that the chick is highly tolerant of indole. Inclusion of crystalline indole in the diet at the rate of 450 mg. per lb. did not depress growth between 4 and 8 weeks of age, even though indole was greatly increased in the excreta and also appeared in the liver. Twice this amount of indole markedly retarded growth up to 8 weeks of age and correspondingly increased concentrations in the excreta and liver. The amount excreted was positively correlated with that consumed. About 99% of the ingested indole was apparently absorbed and detoxified by the liver which was shown to possess a large capacity for detoxification after an initial period of adjustment.

A growth response was obtained with a high level of aureomycin added to a diet containing fish solubles but not with a low level added to a diet which contained no animal product. The presence of the antibiotic did not affect the

occurrence of indole in the chicks fed indole and, conversely, dietary indole appeared to act independently in the presence of aureomycin. The data suggest that antibiotics do not stimulate growth by influencing the amount of indole occurring in the intestine.

LIENERT, E. & KIENEL, G. (1957). Das Problem der Pansentympanie von Typus schaumige Gärung. II. Schaumzerstörer (Therapie). **[Foamy bloat. II. Foam-dispersing agents in therapy.]**—*Dtsch. tierärztl. Wschr.* **64**, 70-79. **2457**

The authors investigated *in vitro* the foam-dispersing properties of a large number of compounds, including ethereal fats and oils, carbonic acids, alcohols, aldehydes, ethers and esters, as well as of various preparations and mixtures, including silicones. Their main conclusion was that many of the old-established tympanites remedies exert a foam-dispersing effect which had hitherto remained unrecognized.

—G. P. MARSHALL.

WEISS, H. S. & FISHER, H. (1957). **Plasma lipid and organ changes associated with the feeding of animal fat to laying chickens.**—*J. Nutr.* **61**, 267-280. [Authors' summary modified.] **2458**

Depending on age of fowls and duration of feeding, 5 to 10% of animal fat added to laying rations resulted in an apparent derangement in lipid metabolism characterized by one or more of the following: rise in plasma cholesterol and total plasma lipid; excess deposits of body fat; friable and fatty liver; fatty deposits in and around the kidney; and greater severity of aortic atherosclerosis.

YOUNG, R. J. & LUCAS, C. C. (1957). **Choline deficiency in the guinea pig.**—*Canad. J. Biochem. Physiol.* **35**, 1-6. **2459**

G. pigs, 4 to 6 days old, gained 5 to 6·0 g. body wt. daily when receiving a diet supplemented with choline. Those fed a choline-deficient diet grew slowly and died within 3 to 4 weeks, at which time only traces of stainable fat appeared in the liver. In g. pigs fed a complete diet for 3 to 4 weeks and then transferred to the choline-deficient diet there was a retardation in growth without mortality up to 6 weeks. A decrease in total body fat was noted, and stainable fat was present in the liver at 4 weeks, with a small but significant increase in total liver fat at 6 weeks. The g. pigs on choline-deficient diets could not utilize betaine with ethanolamine, but betaine with monomethylaminoethanol was as effective as choline in overcoming choline deficiency.—R. V. L. WALKER.

MOUSTGAARD, J. (1956). **Protein requirement and protein synthesis in cows and sows during foetal development.** — *IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 123-131. **2460**

M. assumes that protein synthesis in the products of conception is based on free amino-acids in maternal blood.

A table shows that the ratio of free amino-acids in foetal blood to those in maternal blood varies considerably between individual amino-acids. This indicates that selective retention of amino-acids occurs in the uterus. As yet a quantitative relationship between the amino-acids composition of the foetus and the biological value of the food proteins cannot be expressed. M. considers that further work might elucidate certain sterility problems.—F. L. M. DAWSON.

MCDONALD, M. W. (1957). **Methionine supplements in chicken diets. I. Effect of supplementary methionine and choline on growth and folic acid requirements of White Leghorn chickens.**—*Aust. J. agric. Res.* **8**, 318-324. [Author's summary slightly modified.] **2461**

The addition of 0·2% DL-methionine to a diet based on wheat meal, meat meal, and whey powder produced a 12% increase in weight at 6 weeks in White Leghorn chickens. Although the addition of 4·4 p.p.m. of folic acid to the basal diet produced no response, the addition of folic acid to the methionine-supplemented diet produced a further 7% increase in weight. In a second experiment, supplementing the same basal diet with 0·066% choline chloride produced a 17% growth depression which was prevented by the addition of folic acid. Methionine (0·2%) added to the basal diet supplemented with 0·066% choline chloride and 4·4 p.p.m. folic acid, produced a 5% growth increase, proving that the basal diet was deficient in sulphur-amino acids. It is suggested that folic acid is required for the catabolism of methyl groups provided in excess of the chicken's requirements.

ROIZMAN, P. S. (1956). **[Influence of trace elements on growth and on fur production in rabbits and wool production in sheep.]**—*Trud. vsesoyuz. soveshchaniya po mikroelementam, Riga* 1955. pp. 589-592. [In Russian.] **2462**

Addition of cobalt chloride to the food of Angora rabbits, at the rate of 1 mg. a week

for each rabbit, led to increase in fur production by 25–30%, and also increased the growth rate, even when the diet was not deficient in cobalt or in any other constituent.

In experiments with sheep, a weekly allowance of 40 mg. $CoSO_4$ for ewes and 20 mg. for lambs increased the growth rate by 21% and wool production by 8% over untreated controls. When a weekly allowance of 20 mg. $CoSO_4$ + 20 mg. $CuSO_4$ + 35 mg. $FeSO_4$ was given to ewes and lambs, the growth rate was 56% higher and wool production 18% higher than in untreated controls.—R.M.

CHEPUROV, K. P., CHERKASOVA, A. V., AKULOV, N. M., OSTROVSKIĬ, I. I. & MARTUINYUK, D. F. (1955). **[Urov disease.]** pp. 198. Blagoveshchensk: Amurskoe knizhnoe izdatel'stvo. Price: 6r. 95k. [In Russian.] **2463**

Urov disease (also known as Kaschin-Beck disease) is a chronic mineral deficiency affecting human beings, farm animals and poultry in certain districts of the Transbaikal and Far-Eastern regions of the U.S.S.R. as well as parts of Manchukuo and Korea. It was first recorded in man in 1849 and in animals ten years later. It is manifested by imperfect bone development and swelling of the joints. In affected adult cattle the symptoms are chronic emaciation, muscular atrophy, reduction in milk yield and fertility, often falling out of hair (or wool) and teeth, and depraved appetite. In fowls, geese and ducks the disease is characterized by delayed growth and incomplete development of bone, falling out of feathers, reduction in egg yield, and a high mortality in youngstock.

The pathology of the disease is described in detail. The changes are essentially the same in all species and cases; they differ only in degree. Nearly all tissues and organs are affected by atrophic and necrotic changes, but the most profound and characteristic lesions are present in joints and bones. Joint lesions may be defined as chronic aseptic polyarthrosis; hock and elbow joints are affected in almost all cases, and the characteristic lesions are confined to articular cartilage. Peri-articular tissue remains unaffected. The only parallel condition is chronic deformative arthritis in man.

There are also gross changes in the bones: they become soft and swollen, particularly at the epiphyses, and the marrow cavity and Haversian canalicules are enlarged. Bones often become distorted by pressure and frequently fracture.

The chapter on pathogenesis is not very clear and is rather oversimplified. Stress is laid on the necessity for deficient mineral supply to be constant and of long standing. The disease has been reproduced only by giving animals food from affected areas. In differential diagnosis, rickets, osteomalacia, osteodystrophia fibrosa, and other forms of arthritis can be eliminated on the basis of the characteristic clinical picture of Urov disease and the specific lesions. The limited geographical distribution of the disease is also of diagnostic value.

The cause appears to be a complex mineral deficiency of the soil, in particular a deficiency of calcium and phosphorus. Thus the Ca and P content of hay averaged 1·78 and 1·29 g./kg. compared with the average for the U.S.S.R. of 6·28 and 2·3 g./kg.; Ca was present only in trace amounts in oatmeal and there was 3·03 g./kg. P, against the national average of 1·53 Ca and 4·08 P; in soya beans there was 2·7 Ca and 3·5 P, against the national average of 6·95 Ca and 4·26 P.

General measures for the control of the disease consists of application of fertilisers containing Ca and P to fields and pastures and the obtaining of hay from unaffected areas. Special measures consist of adding to the rations of horses, cattle, sheep, pigs and poultry bone meal, iodized salt, and (for youngstock) fish oil as a source of vitamin D_2. For example, a daily allowance for a pregnant or lactating cow was 60–80 g. bone meal and 30–60 g. iodized salt; for a calf less than 2 months old it was 20 g. bone meal, 5 g. salt and 2–3 g. fish oil.

This monograph is a review of the literature (with a 7-page bibliography) and a summary of 4 years' work by the authors on the distribution, aetiology, symptoms, pathology, pathogenesis, diagnosis, prevention and treatment. It includes analyses of soil, fodder plants, and body tissues, and the experimental reproduction of the disease in farm animals. There is also a discussion of the unity of the disease in man and in animals. The 68 illustrations of affected animals and lesions are original, but have been poorly reproduced. A supplement provides the Instructions for the Control of Urov Disease, as laid down by the Ministry of Agriculture of the U.S.S.R.

—S. TERLECKI.

PARR, W. H. (1957). **Hypomagnesaemic tetany in calves fed on milk diets.**—*Vet. Rec.* **69**, 71-76. **2464**

Thirty-five calves were used to test the effect of the whole milk, containing 9–14 mg. magnesium/100 ml., as a diet. The calves were one week old at the beginning of the test. They were given 15,000 i.u. of vitamin E, and 3,000 i.u. of vitamin D weekly, and iron sulphate and

copper sulphate to prevent anaemia. Certain of the calves were given daily either 1 lb. of flaked maize, 1 lb. of hay low in magnesium (hay extracted with acetic acid washed and dried), a vitamin B supplement, or antibiotics. Others received artificial milk together with a vitamin B supplement.

A few of the calves scoured, a lack of roughage being considered a contributory factor; this resulted in the loss of six calves from the experiment. Certain calves on the highest whole-milk intake (20% body weight) did not take the whole of the ration.

Hypomagnesaemic tetany developed in calves receiving a diet of the whole milk and in those receiving the artificial milk. The provision of roughage, starch food, penicillin, or group B vitamin had no preventive effect. The calves became clinically affected with tetany by the 8th week of age onwards; only a mild degree of hypomagnesaemia occurred during the first 4 weeks of life. A considerable reduction in the Mg content of the bone ash usually occurred. Details are given in tables of analyses of serum, bone, muscle, liver and kidney, together with final body weights and lengths of survival.

—W.A.P.

SMITH, A. H., SPOON, J. E. & WINGET, C. M. (1957). **Transfer of phosphate in the digestive tract. IV. Turkeys.**—*J. Nutr.* **61,** 373-380. [Authors' summary slightly modified.] **2465**

The secretion of endogenous phosphorus into the digestive tract of turkeys was studied after i/v injection of labelled phosphate (P^{32}). The duodenum receives most of the secretion, as is the case with mammals having a simple stomach (*e.g.* pigs). Very little P secretion was indicated in the caeca, although their contents have the highest P concentration of any part of the digestive tract. Appearance of endogenous P in the colon is associated with entry of urine into that organ.

SHKOL'NIK, M. I. (1956). **[Influence of copper and manganese on the amounts of ascorbic and nicotinic acids in the blood, during different functional states of the central nervous system.]**—*Trud. vsesoyuz. soveshchaniya po mikroelementam, Riga* 1955. pp. 543-552. [In Russian.] **2466**

In normal dogs and rabbits, the parenteral administration of copper sulphate or manganese chloride (each at 0·5–2 mg./kg. body wt.) increased the amount of nicotinic acid in the blood. Mn also increased the ascorbic acid content, but Cu did not change it. In animals narcotized with barbitone or chloral hydrate the amounts of nicotinic and ascorbic acids in the blood were reduced. The administration of Cu to narcotized animals increased the ascorbic acid content and reduced the nicotinic acid content, while under the same conditions Mn reduced the nicotinic acid content but had no effect on ascorbic acid. The blood levels of both acids were also reduced when the c.n.s. was stimulated by camphor-in-oil or electricity; the administration of Cu or Mn to these animals partly overcame the fall in blood levels caused by the stimulation.—R.M.

WASSERMAN, R. H., COMAR, C. L., NOLD, M. M. & LENGEMANN, F. W. (1957). **Placental transfer of calcium and strontium in the rat and rabbit.**—*Fed. Proc.* **16,** 267. **2467**

After equal quantities of radioactive Ca and Sr had been fed to pregnant rats for the last 5 days before parturition, the Sr/Ca ratio was 0·17 in the foetuses and 0·28 in the maternal skeleton. This discrimination in favour of Ca was due to an absorptive Sr/Ca discrimination factor of 0·42, a urinary discrimination factor of 0·63 and a placental discrimination factor of 0·65. Discrimination in the placenta applied to the movement of Ca and Sr from dam to foetus, and not from foetus to dam. It was estimated that 92% of the foetal Ca came from the maternal diet.

In rabbits the placental discrimination factor was similar to that in rats. During late pregnancy about 24 mg. of Ca per foetus crossed the placenta daily, compared with an estimated Ca accretion rate of about 13 mg. per foetus daily.—M.G.G.

KULWICH, R., STRUGLIA, L. & PEARSON, P. B. (1957). **The metabolic fate of sulphur^{35} in sheep.**—*J. Nutr.* **61,** 113-126. [Authors' summary modified.] **2468**

Data on the tissue uptake and excretion of radiosulphur by sheep after oral administration of single and multiple doses of labelled sulphate are presented. Absorption into the blood was rapid, the peak occurring within 6 hours. Excretion of the major part of the dose was fairly rapid, an average of 49% being excreted in the urine and 31% in the faeces during the 4-day collection period. Appreciable amounts of labelled sulphur were found in all tissues analysed. Liver, kidney, adrenals, thyroid, spleen, skin, intestinal tissues and cartilage took up more than muscle tissue. Most of the labelled sulphur in liver, spleen and skin was in the form of cystine and methionine. When labelled sulphate was given 3 times weekly over a period of 24 days the excretion pattern of the individual

doses appeared to be similar to that for a single dose. Wool fibres contained radiosulphur in the half inch of new growth.

HAVERMANN, H. & HARTFIEL, W. (1957). Der Einfluss eines grenzflächenaktiven Alkylpolyglykoläthers auf die Kalzifikation bei Küken in Gegenwart von Vitamin D_3. **[Influence of an alkyl polyglycol ether on calcification in chicks in the presence of vitamin D_3.]**—*Arch. Geflügelk.* **21,** 1-15. [English summary.] **2469**

The addition of 3 to 5 g. of "Foryl 50", a surface active alkyl polyglycol-ether, per kg. of feed, stimulates vitamin D_3 activity bringing about increased calcification. This is probably due to improved absorption from the gut.

—W. G. SILLER.

FERGUSON, T. M., COUCH, J. R. & RIGDON, R. H. (1957). **Pathologic study of embryos from vitamin E-deficient turkey hens.**—*Fed. Proc.* **16,** 356. **2470**

Opacity of the lens and focal areas of acute encephalomalacia in the central nervous system were reported in turkey embryos deficient in vitamin E. Other lesions were focal areas of necrosis in the liver, and haemorrhage and oedema in the skin and subcutaneous tissues. Necrosis of the smooth muscle of the gizzard was not observed. [See also *V.B.* **10,** p. 203.]

—M.G.G.

HOVE, E. L. & HERNDON, J. F. (1957). **Vitamin B_6 deficiency in rabbits.**—*J. Nutr.* **61,** 127-136. [Authors' summary modified.] **2471**

A vitamin B_6 deficiency was produced in rabbits fed a diet devoid of this factor. The symptoms were lowered growth rate; death in about 100 days; scaly skin of the ears; some acrodynia of the nose, eyes and forepaws; convulsions similar to those described for other species; mild anaemia; prolonged blood clotting time; and a sudden paralytic collapse accompanied by very marked creatinuria; creatine excretion increased from normal values of about 10 mg. daily per body wt. to over 120 mg. in less than 3 days. Deaths usually occurred during this collapse. In the few survivors, the paralysis of the hind quarters increased to complete immobility and contractural deformities, and creatine excretion returned to normal.

The vitamin B_6 requirement of rabbits was found to be 39μg. daily, or about 1 μg. per g. of diet, as measured by growth. Soft faeces contained 3–4 times as much vitamin B_6 as hard faeces, and accounted for 54% of the total faecal vitamin B_6. These ratios were similar in deficient and in normal rabbits, although the total excretion increased from 8 μg. daily per kg. up to 59 μg. daily per kg.

GARBERS, H. (1957). Zur Frage des Wirkungsmechanismus der oralen Diabetes-Therapie mit B Z 55 und D 860 an Hand eines Falles von Diabetes mellitus beim Hund. **[Oral treatment of diabetes mellitus in a dog with a new sulphonylbutylcarbamide compound.]**—*Dtsch. tierärztl. Wschr.* **64,** 104-105. **2472**

A case of diabetes mellitus in a 9-year-old Spaniel bitch was treated with 1·5 g. of carbutamide daily for 7 days, without effect. G. discussed the hypothesis that this type of drug acts by inhibiting insulinase. The dog improved under insulin and a strict diet.

—G. P. MARSHALL.

SRINIVASAN, V., MOUDGAL, N. R. & SARMA, P. S. (1957). **Studies on goitrogenic agents in food. I. Goitrogenic action of groundnut.**—*J. Nutr.* **61,** 87-95. **2473**

MOUDGAL, N. R., SRINIVASAN, V. & SARMA, P. S. (1957). **Studies on goitrogenic agents in food. II. Goitrogenic action of arachidoside.**—*Ibid.* 97-101. [Authors' summaries slightly modified.] **2474**

I. The goitrogenic effect of earth nut was studied using albino rats. The goitrogenic factor appeared to be water soluble and could not be identified with any of the known dietary goitrogens. This goitrogenic effect was inhibited by dietary supplements of small amounts of iodine as potassium iodide.

II. Arachidoside, the glycoside isolated from earth nut is goitrogenic and as a result of the study of phenolic excretion in the urine, it is suggested that the effect is due to preferential iodination of the phenolic metabolites in the thyroid tissue.

GORBMAN, A., WATERMAN, A., BARNES, C. M. & BUSTAD, L. K. (1957). **Thyroidal function in fetal and pregnant sheep given chronic low level dosages of I^{131}.**—*Endocrinology* **60,** 565-567. [Authors' summary modified.] **2475**

A more than a hundredfold increase in tracer iodine concentrating ability occurred between the 70th and 130th days of gestation in the thyroids of sheep foetuses when the dams were fed 5 μc. of I^{131} daily. By the 115th day the maternal and foetal thyroidal iodine concentrations were almost equal. Even when foetal concentrating power was low, the ability to form iodotyrosines, triiodothyronine, and thyroxine existed. Thus, the mechanism and

capacity for thyroxine synthesis are developed in sheep long before the adult rate of hormone synthesis is attained.

MARKS, S., DOCKUM, N. L. & BUSTAD, L. K. (1957). **Histopathology of the thyroid gland of sheep in prolonged administration of I^{131}.**—*Amer. J. Path.* **33,** 219-249. [Authors' summary modified.] **2476**

The pathological effects in the thyroid glands of sheep after prolonged oral administration of I^{131} are reported. Dosages ranged from 0·15 μc. to 1,800 μc. daily. No pathological changes were observed after 0·15 μc. had been fed daily for 4 years. The principal early manifestations of thyroid damage were interfollicular fibrosis in adults receiving 5 μc. daily and interfollicular oedema in their offspring. Focal inflammation was the initial effect of a daily dose of 480 μc. With doses of between 5 and 480 μc. daily, various combinations of oedema, inflammation and fibrosis occurred. Prolonged administration of larger doses caused necrosis of follicles or infarcts. Progressive arterial damage was observed, including intimal thickening, changes in the internal elastic membrane, destruction of the smooth muscle of the media, and eventual obliteration of the lumina. The pathological changes concerned the interstitial tissue, epithelium, and blood vessels. The effects on the interstitial tissue may be considered of primary significance in the early diagnosis of prolonged exposure to low levels of I^{131} in sheep.

THOMSON, G. G. (1956). **Observations on some treatments of ovine pregnancy toxaemia.**—*N. Z. vet. J.* **4,** 136-144. [Author's summary modified.] **2477**

Various therapy procedures which have been recommended for pregnancy toxaemia in ewes were tested on naturally occurring and "induced" cases of the disease. The results in some 160 cases were assessed on the basis of recovery rate compared with that of untreated controls; the effect of treatment on blood glucose and acetone bodies was followed.

Treatment consisted of glycerol *per os;* glycerol *per os* plus insulin subcutaneously and intravenously; glycerol plus A.C.T.H.; glycerol plus cortisone plus thiamin; glycerol plus potassium chloride i/v; methionine *per os;* and glucose i/v. The survival rate in untreated controls was 20%. The best recovery rate in treated animals was 40–50%. This is regarded as unsatisfactory. Differences in the type of symptoms displayed, mortality rate, and response to certain treatments suggest very strongly that the so-called pregnancy toxaemia induced by reduction of food intake is not identical with the disease as it occurs in the field.

KRONFELD, D. S. (1957). **A comparison of normal concentrations of reducing sugar, volatile fatty acids, and ketone bodies in the blood of lambs, pregnant ewes, and non-pregnant adult ewes.**—*Aust. J. agric. Res.* **8,** 202-208. [Portion of author's summary slightly modified.] **2478**

During pregnancy the concentrations of glucose and volatile fatty acids remained within the pre-pregnant range. A significant rise in blood ketones occurred, some values being as high as 8·8 mM (35 mg./100 ml.) during the last month of pregnancy, indicating that the normal ewe is predisposed to ketosis during the pre-partum period. In the lambs the blood glucose range was 79·115 mg./100 ml. for the first 2 weeks. There was a gradual fall until adult values ($39 \pm 6{\cdot}2$ mg./100 ml.) were assumed at 13 weeks. This fall began 2–4 weeks before rumination was observed and so it was probably not entirely due to the development of rumen function. The volatile fatty acids were always within the adult range, which indicated that lambs have a major source of volatile fatty acids other than the rumen. Ketone concentrations of ($2{\cdot}5 \pm 1{\cdot}14$)mM found in lambs between 1 and 90 days old were higher than those of adults (($1{\cdot}5 \pm 0{\cdot}84$)mM). The catabolism of dietary milk fat might be responsible for the high concentrations of circulating volatile fatty acids and ketone bodies.

See also abstr. **2361** (amino compounds and reproduction of fowls); **2363** (nitrofurazone and nicarbazin as growth stimulants for chicks); **2453** (improved pastures); **2564** (yearbook, New South Wales).

DISEASES, GENERAL

HOFMEYR, C. F. B. (1956). **Two hundred and eighty-four autopsies at the National Zoological Gardens, Pretoria.**—*J. S. Afr. vet. med. Ass.* **27,** 263-282. [Author's summary modified.] **2479**

An outline is presented of measures for the prevention of disease, and the duties and problems attached to the part-time veterinary appointment. The importance of adequate laboratory facilities and of research into morbid conditions in wild animals is emphasized. An extensive review is presented of South African

veterinary literature pertaining to diseases of game. The 284 P.M. examinations are listed individually and some are discussed.

TESTI, B. (1956). Le malattie della lepre. **[Diseases of hares.]** — *Zooprofilassi* **11,** 575-584. **2480**

Diseases to which the hare is susceptible are: endo- and ecto-parasite infestation; toxoplasmosis; pasteurella and staphylococcus infections, contagious eczema, pseudotuberculosis, brucellosis, tularaemia, *Erysipelothrix* (*Listeria*) *monocytogenes* and *E. rhusiopathiae* infection, myxomatosis; rabies.—T.E.G.R.

BOLDRINI, G. (1956). Importazione ed epizoozie. **[Livestock imports and epizootics.]** — *Vet. ital.* **7,** 928-929. **2481**

Two incidents are reported which emphasize the need for veterinary control of international trade stock movement. Outbreaks of F. & M. disease, necessitating the slaughter of about 100 animals, mostly breeding cattle, occurred in Switzerland in May, 1956, after a train load of infected pigs from Belgium had passed through on its way to Italy. All the pigs in the consignment were slaughtered at a quarantine abattoir on the Swiss-Italian frontier. In the same year a horse imported from Turkey subjected to the mallein test on arrival in Italy gave a positive reaction and later manifested symptoms of acute glanders. [See also *V.B.* **27,** 442.]—T.E.G.R.

WASHKO, F. V. & ZEISSIG, A. (1957). **The use of streptomycin in the control of certain diseases of poultry.** In "Antibiotics Annual 1956-1957" pp. 584-591. [New York: Medical Encyclopedia Inc.] **2482**

Chronic respiratory disease in a flock was halted, and the health and egg yield of the birds improved, when each bird was given an i/p inj. of 250 mg. of a mixture of equal parts streptomycin sulphate and dihydrostreptomycin, repeated at intervals of 3–4 weeks, with, in addition, procaine penicillin and streptomycin sulphate added to the food at 50 and 150 g./ton, respectively. It was confirmed that parenteral administration of streptomycin to laying hens prevented the transmission of pleuropneumonia-like organisms through their eggs [see also *V.B.* **26,** 2565]. A single i/m inj. of 200 mg. streptomycin cured infectious synovitis in pullets aged 10 weeks.—R.M.

LARSSON, B., OBEL, N. & ÅBERG, B. (1956). **On the biochemistry of keratinization in the matrix of the horse's hoof in normal conditions and in laminitis.**—*Nord. VetMed.* **8,** 761-776. [In English. German and Swedish summaries.] **2483**

The metabolism of amino-acids containing sulphydryl groups in the process of keratinization was studied by means of radioactive compounds. Cystine was found to be incorporated into the keratin precursor directly from the blood stream. In acute laminitis the incorporation was partially blocked, probably by the failure of the epidermal cells to differentiate.

—M. B. HAWKSLEY.

ZADERII, I. I. & MESHCHENKO, V. M. (1956). **Prophylaxis and treatment of bovine haematuria in Transcarpathia.]** — *Trud. vsesoyuz. soveshchaniya po mikroelementam, Riga* 1955. pp. 607-610. [In Russian.] **2484**

For prophylaxis and treatment the authors recommended that each animal should be given daily 40–50 g. mineral phosphate, 0·04 g. potassium iodine, 0·2 g. copper suphate, 0·02 g. cobalt chloride, 0·08 g. nickel chloride and 40–50 g. common salt, as a feed supplement. The paper is mainly concerned with the chemical composition of milk from affected cows, and does not report the efficacy of the mineral supplement.—R.M.

HUTCHINS, D. R., BLOOD, D. C. & HYNE, R. (1957). **Residual defects in stomach motility after traumatic reticulo-peritonitis of cattle. Pyloric obstruction, diaphragmatic hernia and indigestion due to reticular adhesions.**—*Aust. vet. J.* **33,** 77-82. [Authors' summary modified.] **2485**

Three syndromes characterized by chronic mild indigestion occur as a result of damage caused by attacks of traumatic reticulo-peritonitis. Indigestion due to reticular adhesions and diaphragmatic hernia are indistinguishable clinically. In both diseases there is poor appetite, abdominal enlargement, mild bloat, excessive rumen activity, a systolic cardiac murmur and slowing of the heart rate. Indigestion due to reticular adhesions responds well to rumenotomy and emptying of the rumen. Pyloric stenosis is a more slowly developing syndrome with accompanying anorexia and weakness. Adhesions between the serous surfaces of the reticulum and diaphragm are the basis of all three syndromes.

HANSEN, H. -J. & SHAMS ELDIN MOSTAFA, M. (1957). **Bovine periarteritis nodosa.**—*Vet. med. J., Giza* **3,** No. 3. pp. 57-67. [In English. Authors' summary modified.] **2486**

The authors discussed **"collagen diseases"** in animals. Periarteritis nodosa in a calf is des-

cribed with a view to a possible relationship between the vascular changes and the presence of myocardial sarcosporidiosis.

VERGE, J., GORET, P., PARAF, A., LE TREUT, P., DRIEUX, H., TISSEUR, H. & LABIE, C. (1956). Les maladies du porcelet au sevrage. Phénomènes de Reilly-Selye. **[Diseases of piglets at weaning time, related to the stress syndrome.]** — *Rec. Méd. vét.* **132,** 657-673. **2487**

Diseases affecting piglets at, or before, weaning, are discussed. These are grouped under the term stress syndrome, and include haemorrhagic gastro-enteritis, oedema disease, pericarditis, encephalitis, fatal syncope, baby pig disease, Glasser's disease and MacNutt's disease.—T.E.G.R.

MARKIEWICZ, Z. & STANKIEWICZ, W. (1957). Przypadek krwotoczności małoplytkowej u psa. **[Thrombocytopenic purpura in a dog.]** — *Méd. vét., Varsovie* **13,** 102-105. [In Polish. English and Russian summaries.] **2488**

A case is described of a 10-year-old bitch which, after living in the wild state for several years, was found and became domesticated. Following parturition the bitch became dull, lost condition and frequently passed blood-stained vomit, urine and faeces; haemorrhages from and swelling of the gums and anus were also noted. Blood examination revealed a considerable decrease in the number of platelets, hypochromic anaemia, increase in the number of reticulocytes, and prolonged bleeding and coagulation times. The bitch was treated with glucose s/c, calcium gluconate with vitamin C i/v, vitamin K i/m, and vitamins A and D, ferrous sulphate and calcium phosphate orally. Improvement was noted after 5 days and complete recovery followed within 2 weeks.

—M. GITTER.

UTZIG, J., WANDOKANTY, F. & WARTENBERG, L. (1957). Leczenie wyprysku wewnątrzpochodnego — eczema endogenes u psów wstrzykiwaniem roztworu peptonu. **[Treatment of eczema in dogs by injection of peptone.]**—*Méd. vét., Varsovie* **13,** 153-158. [In Polish. English and Russian summaries.] **2489**

The treatment consisted of s/c injections of 20–30% peptone solution in normal saline, in 2–5 ml. doses given initially every second day but at longer intervals in later stages of treatment. Muscular tremors and pyrexia were observed in the initial stages of treatment which lasted 21–56 days. Of 9 dogs treated 8 were cured (in the 9th the treatment was discontinued). The physiological background of this therapy is discussed.—M. GITTER.

KING, A. S. (1956). **The anatomy of disc protrusion in the dog.**—*Vet. Rec.* **68,** 939-944. Discussion: pp. 944-951. **2490**

The basic factor leading to protrusion is the remarkably early senescence of the intervertebral disc. From the age of one year collagen begins to invade the mucoid nucleus pulposus and eventually makes it fibrous. There is also a tendency for loosening and fragmentation of the lamellae of the annulus fibrosus. Thus, during middle age, the nucleus pulposus loses its resilience and the annulus its toughness and elasticity, and the escape of nuclear material by penetration or even ruputre of the annulus becomes increasingly likely. In the chondrodystrophic breeds of dogs these changes occur within the first year of life. The commonest route of protrusion is dorsal, mainly because of the thinness of the dorsal part of the annulus, and perhaps also because the ventral longitudinal ligament is stronger than the dorsal. The fact that protrusions are commonest in the early lumbar region and at the thoraco-lumbar junction is still unexplained. This question is discussed in relation to the following factors: varying mobility and thickness of the discs, posture, varying thickness of different parts of the discs, and presence of the conjugal ligament.

—M.G.G.

GORRILL, R. H. (1956). **Spinning disease of mice.**—*J. Path. Bact.* **71,** 353-358. **2491**

G. discussed briefly the pathology of spinning or rolling disease in mice. Rolling disease is caused by a pleuropneumonia type of organism, L5, and disease of this type has been set up by intracerebral injection of viruses or toxoplasms which lit up the quiescent infection.

He described a condition in which the mice spin when held up by the tail, with such vigour that they reach a horizontal plane. The mice were under study for renal localization of *Pseudomonas pyocyanea.* The pleuropneumonia-like organism could not be demonstrated and there were no characteristic lesions in the brain or cerebellum. Mice inoculated i/v with *Nocardia sebivorans sp. nov.* developed this syndrome, with lesions involving the inner ear. Mice that became similarly affected in the work on *Ps. pyocyanea* also had such lesions.

—W.A.P.

MLADENOV, Z. (1956). **[Anaemia in broody hens.]**—*Izv. Inst. eksp. vet. Med., Sofia* **4,**

pp. 149-168. [In Bulgarian. German and Russian summaries. Abst. from German summary.] **2492**

The r.b.c. count and haemoglobin content of the blood was ascertained in 16 broody hens throughout the brooding period. Severe anaemia was observed in 15 hens between the 7th and 15th day after the beginning of brooding, accompanied by a decline in r.b.c., Hb, and w.b.c., particularly lymphocytes. The anaemia lasted 1–3 days, though the period of leucopenia was longer. It was found that at the onset of anaemia the source of calcium in the long bones for egg production was greatly depleted. Histological examination of the bone marrow, liver, spleen, pituitary and thyroid gland in affected hens revealed icterus, haemolysis (only in the first stage) in the liver, spleen, bone marrow and lymph nodes, and marked activation of the lymphoid tissue, with the appearance of lymph follicles and necrosis in the liver and myelopoietic foci of disease in the liver and spleen. Basophilic cells predominated in the glandular portion of the pituitary; there was a hyperfunction of the thyroid gland.

—M.G.G.

Schulte, F. (1957). Multipel auftretende Haematome beim Huhn. **[Multiple haematomas in fowls.]**—*Dtsch. tierärztl. Wschr.* **64,** 130-132. **2493**

An account of a disease characterized by the sudden death of well nourished fowls upwards of a year old. The incidence is fairly high—almost 0·3% of the avian material examined. The characteristic lesions were severe anaemia and multiple haematomata in various organs, *e.g.* liver, ovary, kidney, pancreas, spleen, gut, subcutis, muscles, and also free in the abdomen. Recent and long standing haematomata may be found side by side in the same organs. The aetiology is unknown; bacteriological examination was always negative.—W. G. Siller.

See also abstr. **2552-2554** (genital infections); **2563** (report, Canada); **2564** (yearbook, New South Wales); **2565** (report, New Zealand).

POISONS AND POISONING

Bubień, Z. (1957). Przypadki masowego zatrucia drobiu sola kuchenną. **[Sodium chloride poisoning in poultry.]**—*Méd. vét., Varsovie* **13,** 40-43. [In Polish. English and Russian summaries.] **2494**

An account of 3 outbreaks in which 660 fowls and 130 ducks died suddenly following symptoms of excessive thirst, incoordination, convulsions, inability to get up and in some cases diarrhoea. Haemorrhages and petechiae in the duodenum were the common P.M. findings. Chemical analysis revealed 1·95–3·5% NaCl in the crop contents and 2·9–6·5% NaCl in the feeding stuffs. B. is of the opinion that salt poisoning is more common than is generally accepted. It affects principally the alimentary canal and then the nervous system. The lethal dose for a hen is considered to be 4·5 g. per kg. body wt. and that for a dog 3·7 g./kg.

—M. Gitter.

Wahlstrom, R. C., Kamstra, L. D. & Olson, O. E. (1956). **The effect of organic arsenicals, chlortetracycline and linseed oil meal on selenium poisoning in swine.**—*J. Anim. Sci.* **15,** 794-799. **2495**

The authors have previously described how the addition to the food of arsanilic acid or 3-nitro-4-hydroxyphenylarsonic acid prevented the development of chronic selenium poisoning in pigs [*V.B.* **25,** 2986]. The present experiments demonstrated that the addition to the diet of 14% linseed oil meal improved the protective action of these arsenicals, particularly the phenylarsonic acid, against the effects of 13 p.p.m. of selenium in the food. Chlortetracycline gave no protection against selenium poisoning, and did not increase the growth rate of pigs receiving selenium and arsanilic acid.

—D. S. Papworth.

Stoner, H. B. & Magee, P. N. (1957). **Experimental studies on toxic liver injury.**—*Brit. med. Bull.* **13,** 102-107. [Abst. from authors' conclusions.] **2496**

Current thinking supports the view that toxic liver injury results from direct interference with the biochemical machinery of the liver cell by the toxic agent. A complete explanation of the injury produced by any of these agents would greatly increase our knowledge of the normal function of the liver.

Wharton, F. D., Jr., Schoene, R. B., Smidt, M. J. & Fritz, J. C. (1957). **Toxicity of organic arsenicals when fed to chicks.**—*Fed. Proc.* **16,** 402. **2497**

4-Hydroxy phenylarsonic acid added to the food at concentrations of up to 355 g./ton, had no harmful effects on chicks. Even the highest concentration appeared to stimulate growth. In a similar trial with 3-nitro-4-

hydroxy phenylarsonic acid, growth was depressed by concentrations above 90 g./ton. At 180 g./ton nervous symptoms were observed which included an unusual gait, reluctance to stand, and nervousness. A concentration of 450 g./ton appeared to cause mortality.—M.G.G.

WATTS, P. S. (1957). **Decomposition of oxalic acid *in vitro* by rumen contents.**—*Aust. J. agric. Res.* **8,** 266-270. [Author's summary copied *verbatim*.] **2498**

The rumen contents of sheep habituated to the intake of small quantities of oxalic acid are able to decompose considerably increased amounts of this substance. The presence of excess calcium decreases the amount decomposed.

BRAKENRIDGE, D. T. (1956). **Nitrate poisoning caused by turnips and redroot.**—*N. Z. vet. J.* **4,** 165-166. [Author's summary slightly modified.] **2499**

An outbreak in adult cows of nitrate poisoning associated with feeding turnip tops and redroot (*Amaranthus retroflexus*) is described. One cow died, whilst the other two which were affected recovered after i/v injection of 1% methylene blue. Clinical diagnosis was made on the distinct brown colour of the jugular blood. The turnip tops containing about 8% and the redroot about 6% nitrate. A subsequent dosing trial proved the toxicity of both plants by the formation of methaemoglobin.

SELYE, H. & BOIS, P. (1957). **Effect of corticoids upon experimental lathyrism.**—*Endocrinology* **60,** 507-513. [Authors' summary modified.] **2500**

Aminoacetonitrile (AAN) produced marked skeletal deformities, but no aortal aneurysms in rats. Treatment with cortisol acetate suppressed the skeletal lesions but did not sensitize for the production of aortal aneurysms. Conversely, treatment with desoxycorticosterone acetate excited no marked effect upon skeletal lathyrism, but sensitized rats for the production of aortal aneurysms by AAN. Finally, combined treatment with the two acetates completely reversed the normal morphological syndrome of experimental lathyrism, causing AAN to produce aortal aneurysms in the virtual absence of bone lesions. These observations furnish additional support for the theory that the corticoids can participate in the development of the most diverse non-endocrine diseases. This is true even of non-inflammatory tissue reactions to an exogenous irritant.

WHITING, F., CONNELL, R., PLUMMER, P. J. G. & CLARK, R. D. (1957). **Incoordination (cerebellar ataxia) among lambs from ewes fed peavine silage.**—*Canad. J. comp. Med.* **21,** 77-84. [French summary.] **2501**

A condition of incoordination (cerebellar ataxia) among lambs has occurred frequently in Canada, when the ewes have been fed silage made from pea haulms. The condition was first observed when lambs were a few days old, being most evident when they were forced to exercise; it gradually decreased in severity as they became older. If ewes and lambs were pastured in small areas the lambs made normal growth. The condition could not be prevented by feeding additional minerals or fat-soluble vitamins to the ewes, nor by administration of calcium pantothenate or thiamine to the lambs. The aetiology of the condition has not been identified. Pathological changes could not be found in any region except the c.n.s.—R. V. L. WALKER.

SMITH, H. A. (1957). **The pathology of gossypol poisoning.**—*Amer. J. Path.* **33,** 353-365. [Author's summary modified.] **2502**

The principal lesions of gossypol poisoning are congestion and oedema resulting from myocardial injury. The oedema is especially prominent in the lungs and body cavities. The congestion is of great severity in the liver, where it is accompanied by destruction of all except the most peripheral parts of the hepatic cords. This striking change in the liver is comparable to what is seen in poisoning by mouldy corn, poisoning by coal tar, anoxia of circulatory origin, and dietetic imbalance through an excess of unsaturated fatty acids coupled with deficiency of vitamin E and of certain proteins. Interference with oxidative processes may possibly be the fundamental mechanism in all cases.

SCHOENTAL, R. (1957). **Hepatotoxic action of pyrrolizidine (*Senecio*) alkaloids in relation to their structure.**—*Nature, Lond.* **179,** 361-363. **2503**

The hepatotoxic activity of the alkaloids appears to depend on the double bond in the pyrrolizidine moiety. Platyphylline, which lacks it, has not been proved toxic, nor have the products of hydrolysis of retronecine, retronecic lactone and monocrotalic acid.

S. thinks the intact ester structure is another feature essential for hepatotoxicity. She divides the toxic alkaloids into two basic groups, according to whether the esters are open or cyclic, and discusses the significance of the

minor differences between the molecular structure of the different alkaloids. Their toxicity is not affected by reduction or oxidation.

—L. M. Markson.

Newton, L. G. (1956). **Georgina gidyea poisoning of cattle and sheep.**—*Pastoral Rev.* **66**, 874-875. **2504**

The pods of *Acacia georginae*, a tree found in parts of Queensland and the Northern Territory, are relished by cattle and sheep. These, and the leaves of the suckers which appear after the bark has been stripped are highly toxic. As little as ½ lb. of pods caused death in experimental sheep and 10 lb. in cattle. Poisoned sheep become sluggish, show respiratory distress, and may shiver or rear over backwards. Affected animals die suddenly, often when being driven, or even on hearing a loud noise. If they are left alone, some recover. There are no characteristic changes in the organs after death. The tongue and membranes of the mouth are usually cyanotic, especially in sheep. In sheep, also, the lungs are often oedematous and may show scattered haemorrhages. In cattle, the mucous membrane of the abomasum is often dark red.—M.G.G.

Harms, R. H. & Tarver, F. R., Jr. (1957). **The influence of dicumarol upon blood clotting time and blood loss of young chickens.**—*Poult. Sci.* **36**, 76-79. [Authors' summary modified.] **2505**

Feeding dicumarol to growing chickens prolonged the blood clotting time. A level of 750 mg. per lb. of food increased the blood clotting time markedly when the diet did not contain lucerne leaf meal. Feeding dicumarol for 36 hours was adequate to prolong blood clotting time. Blood losses were significantly increased.

PHARMACOLOGY AND GENERAL THERAPEUTICS

(For treatment of specific infections see under the appropriate disease)

Buzard, J. A., Vrablic, D. M. & Paul, M. F. (1956). **Colorimetric determination of nitrofurazone, nitrofurantoin, and furazolidone in plasma.**—*Antibiot. & Chemother.* **6**, 702-707. [Spanish summary p. 728. Authors' summary modified.] **2506**

A simple colorimetric method for the determination of nitrofurazone, nitrofurantoin, and furazolidone in plasma is described. Plasma concentrations of these 3 nitrofurans were determined at several intervals after oral administration of various doses to rats.

Orahovats, P. D., Lehman, E. G. & Chapin, E. W. (1957). **Pharmacology of ethyl-1-(4-aminophenyl)-4-phenylisonipecotate, anileridine, a new potent synthetic analgesic.**—*J. Pharmacol.* **119**, 26-34. **2507**

This compound had an analgesic potency comparable to that of morphine, but with relatively mild side reactions, and was 10–12 times more potent than meperidine. In dogs it was equally effective when given orally or subcutaneously. Its action commenced 20–30 min. after administration and analgesia lasted for 5–6 hours. It also suppressed experimentally induced coughing in lab. animals.—R.M.

Senze, A. (1957). Zabezpieczenie antybiotykami pępowiny przed infekcją u cieląt. **[Antibiotics for the prevention of umbilical infection in calves.]**—*Méd. vét., Varsovie* **13**, 95-96. [In Polish. English and Russian summaries.] **2508**

Good results were claimed when 100 newborn calves were treated with penicillin and 10 with penicillin and streptomycin ointment introduced into the lumen of the stump of umbilical cord and massaged towards the umbilicus.

—M. Gitter.

Spencer, J. N. & Payne, H. G. (1956). **Cycloserine. Experimental studies.**—*Antibiot. & Chemother.* **6**, 708-717. [Spanish summary pp. 728-729. Authors' summary modified.] **2509**

Cycloserine has a low acute toxicity for mice, rats, dogs, and monkeys. It is rapidly absorbed after oral or parenteral administration. Dogs excreted in the urine 25 to 35% of a s/c dose in 24 hours. It does not accumulate in the circulating blood. The response to cycloserine is cumulative. Repeated small doses, which individually are non-toxic, will produce nervous and haematopoietic changes.

Schulze, W. & Schneider, H. (1956). Narkosezwischenfälle bei Hunden mit Thiogenal. **[Respiratory arrest in dogs anaesthetized with "Thiogenal".]**—*Mh. VetMed.*, **11**, 634-635. **2510**

Respiratory arrest occurring under methitural ("Thiogenal") anaesthesia in 4 dogs was treated with intracardial or intravenous leptazole and lobeline, but only two of the animals could thus be revived. While the authors regarded "Thiogenal" as an advance among i/v thiobarbiturates in view of the lack of pre- and post-

anaesthetic excitement, it should only be used where less dangerous methods of anaesthesia are inadequate.—G. P. MARSHALL.

FREY, H. -H. & DÖNHARDT, A. (1956). Vergleichende Untersuchungen über Barbiturate und Thiobarbiturate als Kurznarkotika. III. Untersuchungen zur Analyse der Herzrhythmusstörungen in Thiobarbiturat-Narkose beim Hund. **[Comparison of barbiturates and thiobarbiturates as short-acting narcotics. III. Disturbances of heart rhythm in thiobarbiturate narcosis in dogs.]** —*Arch. exp. VetMed.* **10,** 384-403. **2511**

The authors investigated 6 ultra-short-acting thiobarbiturates electrocardiographically in 102 dogs and found them to vary in their tendency to give rise to cardiac arrhythmias. It was concluded that methitural ("Thiogenal") and thialbarbitone, in that order, were the most likely to give rise to these disturbances, which occur mainly in the form of groups of ventricular extrasystoles. Thiopentone, thialbutone and thiamylal, in decreasing order, were somewhat less likely to produce them, while with "Inactin" (5,5-ethyl-sec-butyl-thiobarbiturate) they hardly ever occurred, and with three N-methyl-barbiturates (*e.g.* hexobarbitone) never. The occurrence of these extrasystoles was attributed to the combined effects of coronary vasoconstriction and a rise in the blood pressure and could be largely prevented by premedication with, *e.g.* chlorpromazine or morphine.
—G. P. MARSHALL.

FREY, H. -H. & KRAUSE, D. (1957). Therapie des akuten Narkosezwischenfalls bei Narkosen mit Barbitursäure-Derivaten. **[Treatment of acute collapse following anaesthesia with barbituric acid derivatives.]**—*Berl. Münch. tierärztl. Wschr.* **70,** 41-45. [English summary.] **2512**

Experiments in dogs established that the acute collapse occurring under hexobarbitone anaesthesia differs from that seen under thiopentone anaesthesia. While the former responds to a combination of artificial respiration and sympathicomimetic drugs, the latter can be adequately treated by artificial respiration alone. Adequate facilities for administering this are regarded as an essential requirement in clinical veterinary practice.—G. P. MARSHALL.

See also absts. **2288** (antibiotics in mastitis); **2300** (antibiotics and sulphonamides in C. ovis infection); **2307** (action of erythromycin and other antibiotics on E. coli); **2308** (action of pentamidine on E. coli); **2323** (tezan and phthivazide in brucellosis); **2338 & 2339** (antibiotics and experimental infection); **2344** (hormones and moniliasis); **2345** (chlortetracycline and C. albicans); **2350** ("Broncho-cillin" in bovine contagious pleuropneumonia); **2357 & 2358** (nucleocidin in trypanosome infection); **2360** (chemotherapy of blackhead); **2363** (nitrofurazone and nicarbazin as coccidiostatic agents); **2364** (antibiotics in coccidiosis and enterohepatitis); **2366** (prophylaxis in haemosporidial infections); **2367 & 2368** (treatment of theileriosis); **2400** (onion juice treatment of distemper); **2407** (oxytetracycline in infectious synovitis); **2420** (antibiotics and immunological response); **2423** (dieldrin-resistant ticks); **2426 & 2427** (treatment of warbles); **2429** (inhibition of hypoderma larvae); **2437** (taeniacides); **2439** (piperazine citrate); **2440** (quinones as anthelmintics; **2444** (anthelmintics for fowls and pigeons); **2446** (sodium fluoride anthelmintic for pigs); **2447** (effect of chemicals on eggs of Ascaris and Fasciola); **2450** (alloxan therapy in primary carcinoma of the liver); **2456** (effects of indole and aureomycin on chicks); **2457** (bloat); **2472** (treatment of diabetes with sulphonylbutylcarbamide); **2477** (pregnancy toxaemia); **2482** (streptomycin in poultry diseases); **2484** (prophylaxis and treatment of haematuria in cattle); **2489** (peptone treatment of eczema); **2536** (antibiotics and V. fetus); **2544** (progesterone, prevention of abortion in cows); **2554**(treatment of uterine infections with "Hibitane"); **2556** (sterility in cows); **2569 & 2570** (books, antibiotics).

PHYSIOLOGY, ANATOMY AND BIOCHEMISTRY

DALY, I. DE BURGH. (1957). **A. R. C. Institute of Animal Physiology, Babraham, Cambridge.**—*Proc. roy. Soc. Ser. B.* **146,** 194-205. **2513**

An illustrated description of the Institute. Work in progress in the Physiology Department includes studies of the autonomic nervous system of sheep, measurement of cardiac output and blood flow in organs, catheterization of the portal vein of ruminants, the corpus luteum during pregnancy, and nervous control of mammary blood supply. In the department of experimental pathology: some aspects of blood transfusion, blood groups and types of haemoglobin in animals, and the local production of antibody in cattle. In the biochemical department: ruminant digestion, poisoning of cattle by fluoroacetic acid in *Dichopetalum cymosum,* and metabolism of phospholipids by the thyroid gland of sheep. There is a bibliography of recently published work.—R.M.

MÜLLER-SETTELE, A. (1957). Die Atmungsfrequenzen des Meerschweinchens in statistischer Betrachtung. **[Statistical study of the respiratory rate in the g. pig.]**—*Zbl. VetMed.* **4,** 297-304. [English, French and Spanish summaries. Abst. from English summary.] **2514**

Out of 500 measurements of respiratory frequency, the mean frequency for the male g. pig was 115 and for the female 120 per min.

FINDLAY, J. D. (1957). **The respiratory activity of calves subjected to thermal stress.**—*J. Physiol.* **136,** 300-309. [Author's summary modified.] **2515**

The pattern of air flow, respiratory frequency, minute and tidal volumes of calves subjected to environmental temperatures of 20°, 30° and 40°C. at an absolute humidity of 17 mg./l. were investigated with a pneumotachometer. At a normal temp. the pneumotachograms were similar to those of dogs. In thermal polypnoea they were similar to those of dogs after exercise, the pattern being pyramidal. The mean asymptotic values for ten calves at 20°, 30° and 40°C. were: respiratory frequency, 70, 120 and 145/min.; minute volume 44, 62 and about 80 l./min.; tidal volume, 0·66, 0·52 l. for 20° and 30°C. only. Three calves were heat-tolerant as judged by the slow rise of rectal temp. with increasing thermal stress. These calves showed large increases in respiratory frequency, large decreases in tidal volume and little change in minute volume with increasing thermal stress. With the heat-intolerant calves there were large increases in frequency, little change in tidal volume and large increases in minute volume. There is a 'critical' rectal temperature of 40·5°C. in the calf at which respiratory activity is affected. In the conscious animal the depth of breathing increases. In the anaesthetized animal the frequency of breathing increases.

I. Bligh, J. (1957). **The relationship between the temperature in the rectum and of the blood in the bicarotid trunk of the calf during exposure to heat stress.**—*J. Physiol.* **136,** 393-403. **2516**

II. Bligh, J. (1957). **A comparison of the temperature of the blood in the pulmonary artery and in the bicarotid trunk of the calf during thermal polypnoea.** — *Ibid.* 404-412. **2517**

III. Bligh, J. (1957). **The initiation of thermal polypnoea in the calf.**—*Ibid.* 413-419. [Author's summaries modified.] **2518**

I. A method is described for the chronic implantation of a polythene-covered thermocouple within the bicarotid trunk of the calf. The temperature in the rectum (T_1) was compared with that of the blood in the bicarotid trunk (T_2) under various degrees of heat stress. T_2 was 0·2–0·3°C. less than T_1 when body temperatures were steady. This difference was independent of environmental temp. but was related to the rate of change of body temp. resulting from it. As the rate of rise of T_1 increased, the difference between T_1 and T_2 decreased. When body temp. was falling the difference increased. The difference between T_1 and T_2 is attributed to the 'thermal inertia' of the rectum. The significance of T_2 as a measure of the mean temp. of the circulating blood is discussed. The temp. gradient between 5 and 12·5 cm. in the rectum was measured and found to be inappreciable.

II. Improved techniques for the implantation of polythene-clad thermocouples within the major blood vessels are described. By means of thermocouples implanted within the pulmonary artery and within the bicarotid trunk of 3 calves, 4–6 months old, a comparison was made of the temp. of the blood at these two points during maximum evaporative cooling from the respiratory system. Within the limits of accuracy of the measuring system (0·05°C.) there was no difference in temp. It is concluded that, even during maximum evaporative cooling in the panting animal, evaporation at the alveolar level is negligible. It is suggested that the term 'cooling in the respiratory passages' is more accurate than 'cooling in the lungs'.

III. A thermocouple was implanted within the bicarotid trunk of calves, which were then exposed to a rapid increase in environmental temp. from 20° to 40°C. A marked increase in the frequency of respiration took place before there was any rise in the temp. of the blood supplying the brain. It is concluded that the thermal stimulus responsible for panting is entirely peripheral. This may be true of other mammals that pant when exposed to heat stress.

Priestley, C. H. B. (1957). **The heat balance of sheep standing in the sun.**—*Aust. J. agric. Res.* **8,** 271-280. [Author's summary copied *verbatim*.] **2519**

An extension is made of Lee's [*V.B.* **21,** 1156] original discussion of the heat balance of sheep exposed to a tropical sun. Methods are given for calculating the two quantities, convective heat loss and long-wave radiation exchange, which automatically compensate to a large extent for the added heat load. There appear to be advantages in distinguishing between the heat balance of the fleece and that of the body of the sheep, and this provides a method of estimating the heat conducted to the body as a consequence of the insolation.

Fraser, I. E. B. (1957). **Observations on the microclimate of the fleece.**—*Aust. J. agric. Res.* **8,** 281-298. [Author's summary copied *verbatim*.] **2520**

The reaction of the fleece to moisture has been studied in terms both of relative humidity of the microclimate and of fleece moisture. The processes of wetting and drying of the fleece are by no means consistent or uniform, and behaviour varies with differing climatic con-

ditions. Measurement of fleece moisture on the basis of relative humidity and total moisture content has shown that fleece types that are susceptible to bacterial discoloration retain moisture for a longer period than do fleece types that are generally immune from such discoloration. The effect is more marked in hogget than in adult fleeces. The importance of sensitivity of the skin to water and the part played by this in the realization of susceptibility are also discussed.

HANSSON, C. -H. (1957). **Cholinesterases and muscle relaxants. II. Blood and muscle cholinesterase activities in domestic animals.** —*Acta pharm. tox., Kbh.* **13,** 142-154. [In English. Author's summary modified. For part I, see *V.B.* **27,** 1904.] **2521**

The occurrence of esterases of succinylcholine, butyrylcholine, acetyl-β-methylcholine, and acetylcholine was investigated in horses, pigs, cows and dogs. Succinylcholine was hydrolysed *in vitro* by blood and muscle from horses and pigs, but not by those from dogs or cows. Succinylcholine esterase activity could not be correlated with other esterase activities.

I MLADENOV, Z. (1956). [**Normal blood picture of the domestic duck in relation to season, sex and age.**]—*Izv. Inst. eksp. vet. Med., Sofia* **4,** 105-119. [In Bulgarian. German and Russian summaries.] **2522**

II. MLADENOV, Z. (1956). [**Normal blood picture of the domestic goose in relation to season, sex and age.**]—*Ibid.* 121-134. [In Bulgarian. German and Russian summaries. Absts. from German summaries.] **2523**

I. From examination of the blood of 350 birds it was concluded that in adult drakes the normal r.b.c. count be taken as 2,910,000 and the normal haemoglobin content as 80·5% (Sahli scale) during the period December to May, and 2,621,000 and 76·85% during the period June to November. In adult females seasonal fluctuations are small, and the average erythrocyte count throughout the year can be taken as 2,646,000 and the Hb content as 76·77%. Thus a sex difference is marked during the months February to June. W.b.c. counts are lower in February and March than in June and July.

II. Study of the blood picture in 63 adult geese revealed a marked sex difference in r.b.c. count and Hb content only during the laying season (December to May). The following average values were ascertained: in adult females the r.b.c. count was 2,437,000 and the Hb content 78·44% (Sahli scale) during the period November to April, and 2,293,000 and 80·42% in the period May to October. In adult males the r.b.c. count was 2,738,000 and the Hb content 85% during the period November to April, and 2,341,500 and 80·66% from May to October. The average w.b.c. count in both sexes was below 20,000 in February and March, and above 25,000 in June and July. In goslings the r.b.c. count was about 2,320,000 during the first 30 days of life, and decreased between 60 and 75 days of age to become stable at about 2,050,000. The Hb content, on the other hand, increased with age.—M.G.G.

RODNAN, G. P., EBAUGH, F. G., JR. & FOX, M. R. S. (1957). **The life span of the red blood cell and the red blood cell volume in the chicken, pigeon and duck as estimated by the use of $Na_2Cr^{51}O_4$. With observations on red cell turnover rate in the mammal, bird and reptile.**—*Blood* **12,** 355-366. [Interlingua summary. Authors' summary modified.] **2524**

Eight to 25% of i/v injected $Na_2Cr^{51}O_4$ binds firmly with the r.b.c. of the fowl, pigeon and ducks. The max. life span of the fowl r.b.c. was 35 days, of the pigeon r.b.c. 35–45 days, and of the duck r.b.c. 42 days. The turnover rate in mammals, birds, and a reptile (turtle) was directly correlated with the basal heat production per kg. body wt. Using r.b.c. tagged with $Na_2Cr^{15}O_4$ *in vitro,* the total r.b.c. volume was found to be 17–24 ml. per kg. body wt. in the cock, 9–12 ml. per kg. in the hen, 25–31 ml. in the duck, and 31–34 ml. in the pigeon. These values are lower than those obtained from indirect estimates using plasma volume figures and peripheral blood haematocrit.

HARKNESS, R. D. (1957). **Regeneration of liver.** —*Brit. med. Bull.* **13,** 87-93. [Author's conclusion modified.] **2525**

The subject has been examined mainly from an academic standpoint and the gaps in knowledge have been emphasized. These gaps are large and it is difficult to suggest any direct application of this work to clinical medicine. The question of the stimulus to regeneration is the fundamental one, and progress on the morphogenic side ultimately depends on its being solved. The earliest stages after partial hepatectomy before mitosis begins should be investigated further. A major difficulty would be removed by the use of short-term experiments. Investigations in rats should be repeated in larger animals. For example, it is likely that in larger animals the process of regeneration may be modified by the higher proportion of hepatic fibrous tissue.

BJÖRKMAN, N. & BLOOM, G. (1957). **On the fine structure of the foetal-maternal junction in the bovine placentome.**—*Z. Zellforsch.* **45,** 649-659. [In English. Authors' summary modified.] **2526**

The foetal-maternal line of junction of the bovine placenta was examined under the electron microscope and the fine morphology of the cryptal and trophoblastic cells explored. Microvilli are present at the contact surface between the cryptal and chorionic epithelial cells, and here interdigitation occurs. The site of the microvilli indicates that the cryptal cells are of maternal origin; this further supports the theory that the bovine placenta is of the epitheliochorial type. The maternal and foetal epithelia rest on basement membranes, that of the foetus being extremely well developed. There are 12 photomicrographs.

JOHNSON, H. D., CHENG, C. S. & BRODY, S. (1957). **Effect of rising environmental temperature on the thyroid I^{131} activity.**—*Fed. Proc.* **16,** 68. **2527**

Thyroid activity in rabbits declined with rising environmental temp. There was a close correlation between the decline of thyroxine production and that of food consumption, indicating that the appetite centre may control thyroid activity at high environmental temperatures.—M.G.G.

MELLEN, W. J. & HARDY, L. B., JR. (1957). **Blood protein-bound iodine in the fowl.**—*Endocrinology* **60,** 547-551. [Authors' summary modified.] **2528**

The blood content of protein-bound iodine was much lower in chickens and ducks than in cattle, rats and rabbits. Experimental alteration of thyroid activity did not alter the content in chickens. It is not a good criterion of thyroid activity in the fowl.

MOSIER, H. D. (1957). **Comparative histological study of the adrenal cortex of the wild and domesticated Norway rat.**—*Endocrinology* **60,** 460-469. [Author's summary modified.] **2529**

A comparison of the adrenals of wild Norway rats trapped in Baltimore or shot on a farm and those of domesticated rats revealed that in the wild rat they are not only larger, but have a different shape and colour. They are usually pyramidal in shape and somewhat elongated, rather than spherical, and are brown, rather than pink. The following histological differences in the wild rat adrenal were noted: (a) the capsule is narrower, denser and has less connective tissue cells; (b) the glomerulosa zone has larger cells containing more lipid, aldehyde and ketonic carbonyl groups; (c) the transition zone is practically absent; (d) the fasciculata zone is wider and contains more lipid, aldehyde and ketonic carbonyl groups; the fasciculata of the rats shot on a farm often contained intracellular colloid; (e) the cell cords of the reticularis zone are straight and are separated by prominent vascular channels; the reticularis cells contain lipid, aldehyde and ketonic carbonyl groups in greater quantities; and (f) the medulla is often markedly vacuolated. Wild rats trapped in the city and kept in captivity usually had large increases in the lipid, aldehyde and ketonic carbonyl groups in the inner part of the fasciculata zone and throughout the reticularis zone. There was no intracellular colloid in this group of rats.

JACKSON, S. F. (1957). **The fine structure of developing bone in the embryonic fowl.**—*Proc. roy. Soc. Ser. B.* **146,** 270-280. **2530**

An electron microscope study of relationships between the bone cells and the elaboration of organic intercellular matrix, and between the osteoid collagen fibrils and the early deposition of inorganic component.—R.M.

BARONE, R. & MASSOT, H. (1956). Le muscle utérin, chez la jument. **[Uterine musculature of the mare.]**—*Rev. Méd. vét.* **107,** 688-698. **2531**

This is an anatomical study of the musculature of: the uterine wall in the foetus and in the young animal; the body and horns of the uterus in the adult; the Fallopian tubes; and the vagina.—T.E.G.R.

See also absts. **2455** (effects of lucerne extract on alimentary tract); **2456** (effects of indole and aureomycin on chicks); **2460** (protein synthesis in pregnant cows and sows); **2465** (transfer of phosphate in digestive tract); **2467** (placental transfer of calcium and strontium); **2469** (effect of alkyl polyglycol ether on calcification); **2573** (book, conformation of the dog).

PUBLIC HEALTH, VETERINARY SERVICES AND VETERINARY EDUCATION

SÎRBU, V. & TOMESCU, V. (1956). **Dezvoltarea şi realizările Institutului "Pasteur", sub regimul democrat-popular. [Development and achievments of the Pasteur Institute in Bucharest.]** — *Anu. Inst. Seruri Vaccin. Pasteur, Bucureşti* **1,** pp. 5-16. [In Roumanian. French, German and Russian summaries. Abst. from German summary.] **2532**

Since the war the Pasteur Institute in Bucharest has been provided with a new building

containing modern equipment. The quantity of its products in 1955 was 23 times greater than in 1938. In 1947 swine fever vaccine adsorbed on aluminium hydroxide was prepared. In the same year production began of Newcastle disease adsorbate vaccine and in 1952 vaccine prepared from the Hertfordshire strain. Since 1949 an attenuated vaccine for swine erysipelas has been produced, and from 1950 a vaccine against anthrax. In recent years vaccine for agalactia, crystal violet vaccine for swine fever, and freeze-dried fowl pox vaccine, made from pigeon pox virus propagated on chorio-allantoic membrane, have been produced.—M.G.G.

See also absts. **2311** (salmonella in slaughter cattle); **2312** (salmonella in pig carcasses); **2397** (S. cholerae-suis in slaughter pigs); **2436** (hydatidosis in slaughter animals); **2452** (soil, food and health).

REPRODUCTION AND REPRODUCTIVE DISORDERS

KUZNETSOV, M. (1956). **Artificial insemination of sheep in the U.S.S.R.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 64-68. **2533**

Sheep spermatozoa survive (a small proportion) up to 48 hours in the cervix but only 8–12 hours in the uterus; suggesting cervical storage until wanted. K. claimed that cervical insemination produces a higher conception rate than uterine. Merinos have been inseminated with epididymal spermatozoa of shot wild *Ovis polii*. This gave a satisfactory cross for mountain pastures. There is air transport of semen up to 5000 miles. In 1947–49, Smirnov deep-froze bull and ram semen without glycerol by spraying it into liquid oxygen or nitrogen; some normal lambs and calves resulted.

The best conception rate obtained with deep-frozen ram semen was 33%.

The Russian workers have great hopes of an automatic cooling apparatus.

—F. L. M. DAWSON.

BARKER, C. A. V. & GANDIER, J. C. C. (1957). **Pregnancy in a mare resulting from frozen epididymal spermatozoa.**—*Canad. J. comp. Med.* **21**, 47-51. [French summary.] **2534**

Testes were obtained from stallions at the time of castration and the epididymal fluid containing spermatozoa recovered. After mixing with a milk diluent and checking for motility, the samples were cooled by refrigeration at 5°C. and then placed in frozen storage at −79°C. A mare inseminated with spermatozoa stored in this manner for 30 days, gave birth to a live male foal after 326 days. This appears to be the first record of birth resulting from the use of frozen stallion spermatozoa.

—R. V. L. WALKER.

JAŚKOWSKI, L. (1956). Badania porównawcze nad przechowywaniem nasienia buhajów w rozrzedzalnikach — żółtkowo-cytrynianowo-glikozowym, żółtkowo-cytrynianowym i mlecznym. [**Preservation of bull semen diluted with yolk citrate, yolk-glucose citrate and boiled skim milk.**]—*Roczn. Nauk. rol. Ser. E.* **67**, 409-424. [In Polish. English and Russian summaries.] **2535**

In dilutions up to 1:40 no significant difference was noted, but at 1:80 the viability of spermatozoa was much higher in skim milk with 10% egg yolk than in other diluents. This diluent also gave better protection against temperature shock. Of 1,335 cows, inseminated artificially with semen diluted with skim milk and yolk, 727 (54·5%) conceived after a single insemination as compared with 684 (52·49%) of 1,303 cows inseminated with semen diluted with yolk–glucose–citrate. The milk should be collected from several cows, heated at 95°C. for 20 min. and stored in a refrigerator.—M. GITTER.

DILIELLO, L. R., POELMA, L. J. & FABER, J. E. (1957). **Effect of antibiotics on *Vibrio fetus* and bovine spermatozoa.**—*Amer. J. vet. Res.* **18**, 86-92. **2536**

Of 7 antibiotics tested to determine optimum concentrations of antibiotic for motility of spermatozoa, aureomycin and terramycin were highly toxic (effect attributed to nature of diluent). 250 μg. of dihydrostreptomycin per ml. was optimal, and proved the best single agent against 3 strains of *V. fetus*, as tested by subsequent culture, but combinations of penicillin or polymyxin with dihydrostreptomycin proved even more effective. Skim milk diluents at 1:25 and 1:50 were used.

—F. L. M. DAWSON.

ALMQUIST, J. O. & HALE, E. B. (1956). **An approach to the measurement of sexual behaviour and semen production of dairy bulls.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 50-59. [French summary.] **2537**

Reliability of reaction time as measure of sexual activity is quite high. A fair half of the total ejaculates obtained in 1 hour are produced in the first 20 min. After 2 hours' exposure to one teaser, most bulls ceased to react; in recovery of reaction potential after a week there

were great individual variations. Change of teaser restored immediately the maximum response; and this was found to be true for three successive teasers, irrespective of the sex of the latter. Oestrus mucus application to the teaser was found ineffective, but presentation of two teasers side by side worked well, response being much better than to either presented singly. In 44 depletion trials with 21 bulls; two-year-old bulls had a lower output of spermatozoa than mature bulls. Semen collection twice a week as compared with once did not reduce conception rate, and output of spermatozoa was increased nearly 70%. A trial of ejaculation twice as compared with six times weekly, for 24 weeks, indicated that trebling the frequency more than doubled the yield of motile spermatozoa. No fertility test appeared to have been made. In 2 out of 5 bulls there was a progressive diminution in density of the semen at this rate of work. Ejaculation 6 times weekly necessitated 3 times as many changes of teasers or other excitant proceedings as the twice weekly collection. From one bull 60 ejaculates weekly were taken for 5 weeks.—F. L. M. Dawson.

Vandemark, N. L. (1956). **Quantitative aspects of semen production in bulls.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 80-89. **2538**

Vandemark confirmed much of the results obtained by Almquist & Hale [see preceding abst.], and showed that 7-day intervals between "partial exhaustions" were as effective as 30-day intervals in restoring reserves of spermatozoa.—F. L. M. Dawson.

Schindler, H., Volcani, R. & Weinstein, S. (1957). **A note on seasonal fluctuations in the motility of cock semen.**—*Poult. Sci.* **36,** 194-196. [Authors' summary slightly modified.] **2539**

Seasonal trends in the motility of cock spermatozoa were found, the percentage of motile cells being high during January—May and low during August—December. The motility seems to be closely related to the stage of moult.

Bishop, M. W. H. & Smiles, J. (1957). **Induced fluorescence in mammalian gametes with acridine orange.**—*Nature, Lond.* **179,** 307-308. **2540**

Spermatozoa supravitally stained with acridine orange and examined under the microscope with ultra-violet dark-ground illumination, had a bright green nucleus and a bright red acrosome (yellow or yellowish-green where it overlapped the nucleus). This characteristic fluorescence was best seen in rodent spermatozoa, but was also present in bull and rabbit spermatozoa; it was absent from human spermatozoa, which fluoresced in various colours. The concentration of dye used was between 1 : 10,000 and 1 : 50,000. The method was also used to study spermatogenesis and fertilization.—R.M.

Parkes, A. S. (1956). **Preservation of living cells and tissues at low temperatures.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 69-75. **2541**

After fowl spermatozoa had been suspended in 15% glycerol and frozen at −79°C. they were found to be infertile as a result of osmotic damage in the oviduct; removal of the glycerol by slow dialysis secured fertility. Normal chicks were ultimately obtained from semen stored for a year at −190°C. In the right medium, the loss of erythrocytes during storage at −79°C. was negligible after more than a year. The expense of de-glycerolization has meant that only rare types of blood were worth deep-freezing, but spraying of blood into liquid nitrogen may prove to be a fairly cheap technique. Not many rabbit ova survived deep-freezing, which suggested that glycerol should be more gradually added as well as being gradually removed. Knowledge of the survival of oocytes through freezing and thawing is still very incomplete. The glycerol freezing technique has led to the establishment of banks of human corneas. Success of freezing methods appears to be due to slow enough freezing to avoid thermal shock, and avoidance of lethal concentrations of electrolytes.

—F. L. M. Dawson.

Parshutin, G. V. (1956). **The role of the nervous system in the reproduction of farm animals.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 45-50. **2542**

P. stated that "the repeated inhibition of sexual reflexes (in the horse) leads to a steady extinguishing of them and sometimes . . . to complete impotence." A fully excited bull yields semen with four times the viability of that from unexcited bulls. He suggested that fuller muscular contraction results in proper emptying of the epididymis. He claimed that massage of the cow's uterus just before insemination raised the conception rate from 59 to 84%, massage improving the quality of the ova and conditions for fertilization, *i.e.*, that it may simulate nervous reflex effects of coitus and accelerate

ovulation. P. has devised "intelligence tests" for stallions, which take only half an hour to apply.—F. L. M. Dawson.

Kvasnitsky, A. (1956). **Generative function of ovary and productivity of farm animals.** — *IIIrd. Int. Congr. Anim. Reprod., Cambridge*, Plenary Papers, pp. 59-64. **2543**

Ova of any given species vary considerably in volume, *e.g.* those of the cow from 0·47–2·06 million cubic μ (diameter 95–158 μ). From one cycle to another in the same animal variations can be almost maximal. 95% of ova are almost spherical. K. emphasized that a proportion of early foetal deaths results from the inherent poor quality of the embryos, arising from the maturation of "poor gametes". He considers that there cannot be any failure of nutrition in the earliest stages of pregnancies.

—F. L. M. Dawson.

Bondavalli, S. (1956). Sull'uso di progesterone *Farmitalia* in bovini con sintomi di aborto prossimo. **[The use of progesterone for the prevention of abortion in cows.]** — *Veterinaria, Milano* **5**, 245. [English, French and German summaries.] **2544**

B. claimed that 80% of 200 cattle showing vulvar swelling and mammary engorgement about the seventh month of pregnancy, were carried to full term by parenteral administration of 50 or 100 mg. of progesterone. These cases were, according to blood tests, affected with *Brucella abortus*. Where the treatment failed the subject was, usually, obviously debilitated. [No untreated contols had been left.]

—F. L. M. Dawson.

Chesterman, F. C., Franks, L. M., Knudsen, E. T. & Williams, P. C. (1956). **Possible aldosteronism in stilboestrol-treated guinea pigs.**—*Lancet* **271**, 1192-1193. **2545**

Entire and castrated male g. pigs received implants of 15 mg. stilboestrol every 3–4 months. The authors consider that there were close parallels with Conn's syndrome in man, including doubled potassium excretion, polydipsia, polyuria and histological kidney changes. Adrenal hyperactivity was incriminated as the primary cause; 17-ketosteroid output was trebled, a feature not seen in the human syndrome, where aldosterone excretion has been proved. There was evidence that the fluid balance and electrolyte changes were not correlated with 17-ketosteroid excretion.

—F. L. M. Dawson.

Beyler, A. L. & Potts, G. O. (1957). **The effects of ethinylandrostenediol 3-cyclohexylpropionate on the reproductive tract of male and female rats.**—*Endocrinology* **60**, 519-531. [Authors' summary modified.] **2546**

Ethandrostate (17α-ethinyl-Δ^5-androstene-3β,17β-diol 3-cyclohexylpropionate) was fully oestrogenic at dosages considerably lower than the androgenic threshold dose. It inhibited pituitary gonadotrophin output markedly, as judged by ability to suppress the growth of the testes of immature rats, to induce ovarian regression in young mature female rats, to bring about near castration level atrophy of the sex accessory organs of young mature males and to prevent or disrupt pregnancy. A comparison of ethandrostate with oestradiol-17β, oestrone, oestradiol benzoate, and diethylstilboestrol dipalmitate was made with regard to the number of oestrogenic units (uterine growth stimulating ED_{50}) of each required to produce marked pituitary inhibition. Ethandrostate exerted the greatest degree of pituitary inhibition per unit. This action of ethandrostate is considered to be a function of its oestrogenicity despite the disparity in dose-effect ratio compared with the other oestrogens.

Edgren, R. A. & Calhoun, D. W. (1957). **Estrogen antagonisms: inhibition of estrone-induced uterine growth by testosterone propionate, progesterone and 17-ethyl-19-nortestosterone.**—*Proc. Soc. exp. Biol., N.Y.* **94**, 537-539. [Authors' summary modified.] **2547**

These 3 substances are all antagonists of uterine growth induced by oestrone in intact immature mice. Progesterone has about 1·4 times and 17-ethyl-19-nortestosterone about 70 times the potency of testosterone propionate. This high activity of 17-ethyl-19-nortestosterone does not appear to be correlated with its androgenic, anabolic, progestational or metrotropic properties.

Glick, B. (1957). **Experimental modification of the growth of the bursa of Fabricius.** — *Poult. Sci.* **36**, 18-23. [Author's summary modified.] **2548**

Cortisone acetate reduced bursa size in 4 and 8-week-old Rhode Island Reds independent of the hormone's suppressing effect on body growth. However, the inhibition of bursa growth in 4-week-old White Leghorns with cortisone is, in part, a reflection of retarded body growth.

Testosterone propionate significantly reduced the size of the bursa in 8-week-old Rhode Island Reds, while caponization slightly increased the weight of the bursa. A significant difference was not noted between the bursae of 4-week-old

treated and control Rhode Island Reds. The bursae of Rhode Island Reds may be more sensitive to male hormone at 8 weeks than at 4 weeks.

The reduction in mean bursa weight of 3-week-old White Leghorns injected with 7·5 mg. of testosterone can be explained by the accompanying reduction in body size. It is suggested that testosterone is most effective in producing bursa regression just before the normal regression of this gland.

The lymphatic nature of the bursa is indicated by its reaction to cortisone.

Shelesnyak, M. C. (1957). **Failure to detect estrogenic or gonadotrophic activity in ergotoxine.**—*Proc. Soc. exp. Biol., N.Y.* **94,** 457-458. [Author's summary modified.] **2549**

Ergotoxine methanesulphonate was tested on adult spayed, and immature intact rats for oestrogenic and gonadotrophic activity. None was found. The action of ergotoxine in terminating early pregnancy and pseudopregnancy cannot be explained as oestrogenic.

Amoroso, E. C. (1956). **The endocrine environment of the foetus.**—*IIIrd. Int. Congr. Anim. Reprod., Cambridge,* Plenary Papers, pp. 25-32. **2550**

The author discussed (1) maternal endocrine functions and (2) foetal endocrine functions. Topics included under the first heading were: the egg–ovary–oviduct relationship; implantation and delayed implantation; relationships between the anterior pituitary and the placenta, and between adrenal gland and placenta. Foetal functions discussed were those of the hypophysis; gonadal activity and sexual differentiation; embryonic differentiation of the genital system; sex deviations; placental hormones and foetal gonadal activity.—F. L. M. Dawson.

Casida, L. E. (1956). **Variations in the maternal environment affecting prenatal survival and development.** — *IIIrd. Int. Congr. Anim. Reprod., Cambridge,* Plenary Papers, pp. 19-25. **2551**

C. discussed various factors which influence the number and size of offspring in cattle, sheep and pigs, particularly the nutrition of the dam. There is special reference to work done by the author and his colleagues at the University of Wisconsin.—F. L. M. Dawson.

I. Rasbech, N. O. (1956). **Genital infections, with special reference to control measures.** — *IIIrd. Int. Congr. Anim. Reprod., Cambridge,* Plenary Papers, pp. 37-42. **2552**

II. Lawson, J. R. (1956). **Some genital infections and their association with infertility and reproductive failures.**—*Ibid.* pp. 42-45. **2553**

I & II. Both authors discussed the control of genital infections by vibrios, trichomonads, brucella and other agents, including mycotic abortion. There was particular emphasis on the relative importance of vibriosis among these infections.—F. L. M. Dawson.

Perlasca, M. (1956). Infezione da parto nella bovina e relativo trattamento con bicloridrato di bisparaclorofenildiguanidoesano. **[Uterine infections in the parturient cow and their treatment with "Hibitane" (chlorhexidine).]** — *Profilassi* **29,** 70-75. [French summary.] **2554**

About 100 cases were treated in the puerperal and post-puerperal period, using 1 g. of the active principle in pessary form with a foam-producing agent. Good results were claimed. 14 examples are given, including acute septic metritis, simple placental retention and chronic purulent endometritis. [No reference is made to bacteriological control, to any failures experienced in the use of the drug, or to recoveries by control cases left untreated.]

—F. L. M. Dawson.

Munro, I. B. (1957). **Infectious and non-infectious herd infertility in East Anglia.**—*Vet. Rec.* **69,** 125-129. **2555**

A report of the factors associated with low fertility in 406 dairy herds investigated between 1952 and 1955. All the herds were on loamy soils poor in phosphate and potash. Artificial insemination was carried out wholly or partially in 366 of the herds. In 34 (8%) the major factor was poor breeding management, and in 266 (66%) a nutritional deficiency, in phosphorus, copper, manganese, or protein. Administration of copper sulphate or manganese sulphate in some of these herds improved fertility greatly. In 106 herds the factor was an infection, with *Vibrio fetus* in 69, *Brucella abortus* in 19, and *Corynebacterium pyogenes* in one. In another infertility followed an outbreak of parasitic bronchitis. In the remaining 16 herds tests for pathogenic organisms were negative, in spite of abortion or other inflammatory changes in the genital tract.—M.G.G.

Renzi, V. (1956). Successi ottenuti, nella sterilità bovina, attraverso l'impiego delle vitamine "E", "A" + "D_2", nonchè con le medicazioni endouterine di antibiotici. **[Treatment of sterility in cows with vitamin E and with a combination of A and D_2.]**—*Nuova Vet.* **32,** 430-439. **2556**

Among 13 herds, 132 infertile cows were treated with vitamin E, 133 with 100,000 i.u. vitamin A and 3×10^6 i.u. vitamin D_2 at oestrus, repeated after 10 days, while 40 showing pus streaks in scanty uterine discharge were given all three vitamins, and antibiotic uterine irrigation. In these three groups respectively 88, 92 and 72% conceived within 3 services after treatment. Husbandry conditions were stated to be bad and it was thought that Ca/P imbalance was involved.—F. L. M. DAWSON.

ROSS, D. B. (1957). **A suspected case of congenital porphyria (pink tooth) in a heifer.**—*Vet. Rec.* **69,** 345-346. [Author's summary modified.] **2557**

A suspected case of congenital porphyria in a Shorthorn heifer is described. Both individual and familial histories are given.

HULLAND, T. J. (1957). **Cerebellar ataxia in calves.**—*Canad. J. comp. Med.* **21,** 72-76. [French summary.] **2558**

Histopathological and genetic evidence of an ataxic condition in calves due to aplasia of the cerebellum is described from cases found in a grade Shorthorn herd and a purebred Hereford herd. Literature is reviewed in which previously this condition has been observed only in the Jersey breed.—R. V. L. WALKER.

SCHUMANN, H. (1956). Federmissbildungen beim Geflügel. [**Inherited abnormalities of the plumage in fowls.**]—*Arch. Geflügelk.* **20,** 421-434. [English summary.] **2559**

A review of plumage abnormalities of the fowl, with reference to their genetic basis.
—W. G. SILLER.

MCWHIRTER, K. G. (1956). **Control of sex ratio in mammals.**—*Nature, Lond.* **178,** 870-871. **2560**

A discussion of the effect of the pH of the blood of an animal on the sex of its offspring, in the light of the work by J. A. Weir [*J. Hered.* **46,** 277 (1955)], who found that male rats having an average blood pH of 7·42 produced 40 males to every 60 females, while those having a blood pH of 7·46 produced 60 males to every 40 females. The present author suggested that a practical system of controlling sex ratio in farm animals might be set up either by selecting sires for the appropriate pH tendency, or by altering the pH by pharmacological, physiological or nutritional means.—R.M.

See also absts. **2361** (amino compounds and reproduction in fowls); **2565** (report, New Zealand); **2572** (book, genital diseases).

MISCELLANEOUS

PHILLIPS, R. W. [Edited by.] (1956). **Recent developments affecting livestock production in the Americas,** pp. 181. F.A.O. Agricultural Development Paper No. 55. Rome: Food and Agriculture Organization of the United Nations. **2561**

This publication, like others in the same series, is designed to make available information that should be useful to member countries of the Food and Agriculture Organization, in planning and implementing agricultural improvement schemes. It is based on material presented to the 3rd F.A.O. Meeting on livestock production in the Americas, held at Buenos Aires in 1955.

There are the following chapters: improving livestock through breeding (including climatology and artificial insemination); improvement through improved nutrition and management; improvement through better disease and parasite control; status of the poultry industry; interpretation and evaluation of the results of animal husbandry and veterinary experiments; national services to the livestock industry; proposals to facilitate cooperation among the countries (including a proposed multilingual glossary of animal husbandry terms).—R.M.

REPORTS

GREAT BRITAIN. (1956). **City and Royal Burgh of Edinburgh. Annual report of the Public Health Department for the year 1955 by the Medical Officer of Health.** [SEILER, H. E.] pp. 244. Edinburgh: Hugh Paton & Sons Ltd. [Report of Veterinary Inspector pp. 222-238.] **2562**

The report of the veterinary inspector includes a graph showing how the slaughter of cattle has become more satisfactorily distributed since meat rationing was abolished.

On the 20th Dec. 1955 there were 20 registered dairies in the city, comprising about 700 cattle. For the fourth year in succession, all samples of milk (total 22) taken for examination for tubercle bacilli were negative. A complaint of "ropy milk" from one customer caused considerable trouble before it was eliminated. Of

228,872 animals slaughtered at the abattoir during the year, 40,040 were cattle. 173,010 lb. of meat were condemned, which included 134 cattle carcasses totally condemned, 60 of these being for TUBERCULOSIS. The percentage incidence of TB. in animals slaughtered was 6·22 for all adult bovines. It was highest in cows (11·09) and 0·44 in calves; in pigs it was 1·71. *Cysticercus bovis* was found in 286 (0·82%) of 34,865 cattle carcasses.

The report includes that of the dead meat market and a plea is made to have this removed from its present site within the city. 175,360 animals passed through the fat stock market and 165,589 through the store market.

The veterinary service is responsible for the inspection of all food stuffs, besides milk and meat, and for food inspection at the port.

—D. S. RABAGLIATI.

CANADA. (1956). **Province of British Columbia. Fiftieth annual report of the Department of Agriculture, 1955.** pp. 145. Victoria: D. McDiarmid. [Report of Livestock branch pp. 51-67. (GUNN, W. R.).] **2563**

Estimated numbers of livestock at the 1st June 1955, were: cattle, 374,000; sheep, 85,000; pigs, 55,000; horses, 29,000; and poultry, 4,262,000.

Satisfactory progress in the control of BRUCELLOSIS is reported; 36,815 calves were vaccinated during the year. VIBRIOSIS was encountered in the course of eradication of BRUCELLOSIS and measures for its control were undertaken. A large flock of sheep was under quarantine for JOHNE'S DISEASE. An increase in the incidence and virulence of MASTITIS is reported. FOOT ROT in sheep was still in existence but under reasonable control; in cattle the condition was becoming increasingly important and work for its control was commenced. Liver abscess appeared more frequently where FOOT ROT in cattle was prevalent. SWINE ERYSIPELAS and ATROPHIC RHINITIS of pigs were very widely distributed. KERATITIS (Pinkeye) was quite well established and becoming more widely distributed. The possible relationship between this disease and CARCINOMA of the eye is mentioned. RABIES control is an activity of the Federal Health of Animals Division in which, however, the Department of Agriculture assists. Statistical tables of slaughterings, livestock prices, cattle and hide shipments, laboratory examinations and other information are appended.—T.E.G.R.

AUSTRALIA. (1956). **The stock inspector. Institute of Inspectors of Stock of New South Wales Year Book 1956.** pp. 89. Sydney: The Institute. 2s. 6d. **2564**

Papers on the following subjects are included: atypical cases of LISTERIOSIS in sheep; blood sampling from the tail for the c.f. test for BOVINE CONTAGIOUS PLEUROPNEUMONIA; unusual outbreaks of CONTAGIOUS PUSTULAR DERMATITIS; distribution of the cattle tick *Haemaphysalis bispinosa*, in New South Wales; an unusual syndrome associated with LIVER FLUKE INFESTATION; outbreaks of AVIAN MONOCYTOSIS which differed from those reported overseas; MINERAL IMBALANCE in cattle with reference to the occurrence in New South Wales of HYPOMAGNESAEMIA, HYPOCALCAEMIA and APHOSPHOROSIS; a CONGENITAL DEGENERATION OF NERVE TISSUE in calves ("CURLY CALVES").

—R. I. SOMMERVILLE.

NEW ZEALAND. (1956). **New Zealand Dairy Board. Thirty-second annual report, year ended July 31st, 1956.** pp. 123. Wellington: New Zealand Dairy Board. [Items of veterinary interest pp. 92-98.] **2565**

A survey of the incidence of ABORTION in some 4,000 tested herds revealed that in the North Island out of 255,891 cows, the percentage of all cows aborting was 2·8 of which 73% aborted at seven months or earlier.

A survey of fertility in naturally mated herds was carried out in 1955 for two main reasons, (1) to see if poor results of artificial insemination might be due to low fertility in the area and (2) to investigate any seasonal variation in fertility. Further study is required on the latter aspect and no results are given. A table is given showing natural fertility in groups classified "high" or "low" on the results of artificial insemination in 1955. In 226 herds whose A.I. index was considered "high" (mean 54%), the natural fertility was 65·6%, and in 215 herds where the A.I. index was considered "low" at 41·5%, the natural fertility index was 65·5%. The natural mating fertility index was the number of cows in calf to the first service and the A.I. index was the percentage of all inseminations which were successful.

Concerning the association of milk yield and fertility in dairy cattle, it was indicated that there was further evidence that the level of production in a herd has little if any connexion with the fertility of the herd.

During 1953–55 two surveys were carried out to determine the incidence of deaths from BLOAT. In 1953–54 the percentage of deaths was 0·62; in 1954-55 it was 0·75 out of 288,462

cows. A conservative estimate of the financial loss based on deaths only in the 1954–55 season would be £300,000; *i.e.*, the loss of 15,000 cows valued at £20 each. This figure takes no account of the indirect losses from the same condition.—D. S. RABAGLIATI.

I. SOUTHERN RHODESIA. (1956). **Veterinary report (field branch) summary: July, 1956.** [LAWRENCE, D. A.]—*Rhod. agric. J.* **53,** 983-987. **2566**

II. SOUTHERN RHODESIA. (1956). **Veterinary report (field branch) summary: August, 1956 and September, 1956.** [MACKINNON, J.]—*Ibid.* 988-992 & 993-997. **2567**

I & II. Tick life had a sharp rise, especially the blue tick larval infestation. Many farms have reverted voluntarily to seven-day dipping. By cleaning tanks and replenishing with full strength of arsenic, satisfactory control has been obtained in many areas.

There have been no serious outbreaks of contagious disease, though 115 cases of BLACKLEG occurred, seven deaths being in calves following castration with a knife used for skinning a BLACKLEG carcass. Twenty-six cases of PIROPLASMOSIS were reported.

Seven cases of RABIES occurred in dogs in certain native districts. Altogether since the outbreak began 769 cases have been confirmed and 523,946 vaccinations have been carried out. SHEEP SCAB was confirmed on one farm and on two native reserves.

Out of 297 imported cattle tested with tuberculin, 295 passed the initial test and two were re-tested; out of 80 exported cattle tested, 78 passed and two had to be re-tested. Under the voluntary veterinary tuberculin testing scheme 2,363 cattle were tested with five reactors and 114 doubtful. In view of the reduction in the incidence of TB, slaughter of all reactors is now adopted.

The winter had been one of the mildest in living memory. Very large veld fires, especially in Matabeleland native areas, reducing grazing considerably.

It is considered that dosing against internal parasites during the early and late winter has contributed to the overall satisfactory standard of general condition of the cattle.

During the month of August 1,257 bulls were examined for CONTAGIOUS EPIDIDYMITIS and VAGINITIS and 150 were positive.

Seventeen animals were found to be affected with ANAPLASMOSIS.

Notes on poultry diseases and on some non-scheduled conditions of livestock are also included.—D. S. RABAGLIATI.

GOLD COAST. (1956). **Annual report of the Department of Animal Health, 1954-55.** [MCKINNON, A. S. M.] pp. 18. Accra: Govt. Printer. 2s. 6d. **2568**

The year was notable as it saw the completion of the new Head Quarter Offices and the move of Headquarters back from Accra to Northern Territories.

There has been no major outbreak of epidemic disease in livestock, other than in poultry. With the human population of four and a half millions and the cattle population of under 500,000 in an area roughly the size of the United Kingdom, a rapid increase in the livestock is essential.

RINDERPEST is not endemic but is introduced now and again by imported cattle. The annual vaccination was successful when 147,829 animals out of a total of 500,000 were inoculated with lapinized rinderpest vaccine.

TRYPANOSOMIASIS is undoubtedly the greatest hindrance to expansion of the livestock industry in the Gold Coast.

The report of a visiting poultry disease expert from Purdue University, U.S.A., brought home to the Department the extraordinarily heavy losses suffered by the poultry industry each year. It is estimated that at least 50% of the fowl population is killed off by NEWCASTLE DISEASE every year.

The diseases of pigs, sheep and goats were investigated. EPIZOOTIC LYMPHANGITIS is endemic among horses. Treatment by means of a variety of drugs failed.

The scope of the laboratory services was seriously hampered by lack of facilities and shortage of staff.—D. S. RABAGLIATI.

BOOK REVIEWS

WELCH, H. & MARTI-IBAÑEZ, F. [Edited by.] (1957). **Antibiotics annual. 1956-1957.** pp. xvii+1134. New York: Medical Encyclopedia, Inc. $10.00. **2569**

This contains 154 papers read at the 4th annual symposium on antibiotics held at Washington in 1956. It gives the reader a wide view of the latest advances in a very large subject, with emphasis on pharmacology and clinical applications, but not forgetting other aspects, such as antifungal agents and the use of antibiotics in the preservation of meat, fish and

vegetables. (The symposium did not discuss the use of antibiotics as food supplements for growth promotion in animals.) There are three papers of primary veterinary interest:— Use of streptomycin in the control of certain diseases of poultry, by F. V. Washko & A. Zeissig; Oxytetracycline in the therapy of infectious synovitis in experimentally infected chickens, by E. H. Peterson and others; Effects of antibiotics on avian coccidiosis and enterohepatitis, by A. C. Cuckler & C. M. Malanga. Other interesting papers describe the action of nucleocidin on *Trypanosoma equiperdum*, and the action of various antibiotics against *Leptospira pomona* infection in hamsters. [All these articles are abstracted separately in this issue of the *Vet. Bull.*].

Four new antibiotics were introduced:— RISTOCETIN, from *Nocardia lurida* n.sp., active against Gram-positive cocci and tubercule bacilli; PA 132, a lactonic acid from an unidentified *Streptomyces*, highly active against a wide variety of bacteria, fungi pathogenic for animals and plants, and protozoa (including *Trichomonas vaginalis*); NUCLEOCIDIN, from *Streptomyces calvus* n.sp., active against trypanosomes; ALAZOPEPTIN from *Streptomyces griseoplanus* n.sp., a diazoketone active against "sarcoma 180" in mice. There is also detailed information on novobiocin, vancomycin, amphomycin and bryamycin, as well as those now in general use (*e.g.* salts of penicillin, erythromycin, nystatin, cycloserine).

A large section deals with food preservation. The effect of chlortetracycline on the microflora of beef is reported by J. M. Jay and others. Other items which may be mentioned are therapeutic trials of the newer antifungal agents (p. 467) and a study of the sensitivity to 7 antibiotics of 324 strains of *Escherichia coli* (p. 470).

While this book is essential to those directly concerned with antibiotics, it will also be valuable for those wishing to keep abreast of new drugs and their clinical applications. The print and style are excellent and make reading a pleasure.—R.M.

ANON. (1956). **Proceedings of the first international conference on the use of antibiotics in agriculture held under the auspices of the Agricultural Board and the Agricultural Research Institute, National Academy of Sciences—National Research Council 19–21 October 1955.** pp. xx+278. Washington: National Academy of Sciences—National Research Council. $2.50. [Publication 397.] **2570**

The five sessions of this conference had the following titles: Growth response in animals; Special biological problems (including administration of high levels of antibiotics and effects of antibiotics on reproduction); Mode of action; Treatment of crops and preservation of food; Public health aspects. Each session started with the reading of 2–4 papers, being mainly reviews, and continued with a free discussion by a selected panel of experts, reported *verbatim*. Each session ended with a summing-up, which with the discussions make interesting reading. —R.M.

FERRER, M. I. [Edited by.] (1956). **Cold injury. Transactions of the fourth conference, November 7, 8, and 9, 1955. Princeton, N.J. [Sponsored by the Josiah Macy, Jr. Foundation.]** pp. 371. New York: Josiah Macy Jr. Foundation. $5.95. **2571**

This conference concentrated on frost-bite and induced hypothermia. Particular attention was paid to the histopathology of tissues and radiological appearance of bones in frost-bite in man and (experimentally) in rabbits. A paper by A. Smith & R. K. Andjus described the resuscitation of hypothermic, super-cooled and frozen mammals. Another by F. A. Fuhrmann on changes in cellular metabolism following cold injury reported experiments with rat skin. —R.M.

ROBERTS, S. J. [Professor of Veterinary Medicine and Obstetrics, New York State Veterinary College, Cornell University.] (1956). **Veterinary obstetrics and genital diseases.** pp. xv+551. Ithaca, N.Y.: The Author. (Distributed by Edwards Brothers, Inc. Ann, Arbor, Michigan.) $10.50. **2572**

The growth of the literature on genital diseases in the last decade has been very rapid; therefore, any attempt to canalize this information is to be commended. This book is a large one both in page size (8″ x 11″) and number of pages 551. Each page is printed by photo-offset method in double column with unadjusted margins. This gives a rather untidy appearance but has the great merit of keeping the cost of printing down. There are 37 illustrations and 19 chapters starting with anatomy and terminating with artificial insemination, of all the domesticated animals. The emphasis is on disease, nutrition and the physiology of reproduction. The author has drawn widely

from the mass of published literature, and has provided each section with a list of references. Some readers would have preferred Dr. Roberts' own crystallized opinions with suitable condensation of the more speculative and uncontrolled observations.

In the section on trichomoniasis, which is somewhat over emphasized and over detailed, there is no mention of the use of the vaginal mucus agglutination test introduced by Pierce and by Florent and which in Gt. Britain and on the continent of Europe has been invaluable in herd diagnosis.

In the description of brucellosis the author omits any mention of the local production of antibodies or its diagnostic use and also of the role of the whey test in eradication schemes. He states that milk titres of 1/25 and under are safe. Some workers have found that a certain percentage of these low titres indicate viable infection as shown by guinea-pig inoculation.

The section on *Vibrio fetus* is better than the first two sections. The mucus test is described but is attributed to Terpstra although it had been used for some years previously in diagnosis of trichomoniasis by Pierce in Gt. Britain and Florent in Belgium.

In tuberculosis of the uterus it is stated that the tuberculin test may fail to detect those severely affected—surely this refers to a generalized infection and not a purely uterine one. In Gt. Britain experience shows that where tuberculosis has been introduced into the uterus there may be a delay in the appearance of the tuberculin reaction, but once a reaction does occur it is as active as in any other type of the infection.

The chapters on nutrition and its relations to infertility are full of interesting data. That so much of the evidence is uncontrolled emphasizes the difficulty of assessing its value.

With regard to the low plane of nutrition in cattle Roberts stresses the multiplicity of deficiencies which may accrue from low protein diets and that the symptoms of delayed puberty in heifers and anoestrus in cows are identical with those attributed to deficiency of phosphorus. He does not consider that calcium deficiency causes reproductive failures in the cow. In summarizing the section on anoestrus he reflects the feelings of Asdell "that it is a depressing task to gather the literature on the part played by hormones in sterility together" and introduces a great deal of scepticism into this assessment. This section is particularly commended to the reader.

He deals at length with the "Hard to settle cow," a major problem to the veterinary practitioner, and states that we are still very much on an empirical basis and that more controlled studies are required. The scepticism he evinces towards much of the work on nutrition, hormones, and the treatment of "hard to settle cows" is salutary. He regards as significant the fact that untreated animals often recover almost as well as the treated groups. In discussing infertility in the male he states: "the genetic make up of a sire largely determines his fertility potency" and that only severe disease, nutritional deficiencies, or injuries have important effects on male fertility; this is something that many will agree with.

The book can be recommended for the mine of information and references it includes. The reader will have to assess much of it for his own purpose; the author could have usefully summarized each section and streamlined a great deal of the evidence which is presented in a repetitive and sometimes cumbersome style. He is to be congratulated, however, on tackling such a monumental task and presenting this difficult subject in book form.—W. R. KERR.

SMYTHE, R. H. (1957). **The conformation of the dog.** pp. 159. London: Popular Dogs. 18s. **2573**

The author described the anatomical basis of conformation in the main breeds of dogs in a manner intelligible to the layman. He demonstrates the faults of dogs bred purely for appearance, regardless of anatomy or body function. There are many line illustrations, and a glossary.—R.M.

BOOKS RECEIVED

[Notice of recently received books in this list does not preclude review.]

FRAUCHIGER, E. & FANKHAUSER, R. (1957). Vergleichende Neuropathologie des Menschen und der Tiere. **[Comparative neuropathology of man and animals.]** pp. viii+451. Berlin (Göttingen & Heidelberg): Springer Verlag. DM 126.60.

GASTINEL, P. (1957). Précis de bactériologie médicale. **[Précis of medical bacteriology.]** pp. vii+1243. Paris: Masson et Cie. 2nd Revised Edit. Fr. 6.700.

HISCOCKS, E. S. (1956). **Laboratory adminis-**

tration. pp. xvi+392. London: Macmillan & Co. Ltd. 36s.

HORTON-SMITH, C. (Edited by.) (1957). **Biological aspects of the transmission of disease.** pp. viii+184. Edinburgh (& London): Oliver & Boyd. [Published for the Institute of Biology.] 21s.

KOCH, P., FISCHER, H. & SCHUMANN, H. (1957). Erbpathologie der landwirtschaftlichen Haustiere. **[Hereditary diseases in farm animals.]** pp. xv+436. Berlin (& Hamburg): Paul Parey. DM 52.

MOORE, T. (1957). **Vitamin A.** pp. xx+645. Amsterdam (London, New York & Princeton): Elsevier Publishing Company. 76s. [Distributors: London: Cleaver-Hume Press, Ltd. New York: D. van Nostrand Co. Inc.]

NIKITIN, V. N. (1956). **[Haematological atlas of farm and laboratory animals.]** Vol. I. pp. 258. Vol. II. 191 plates. Moscow: Gosud. izd. sel'skokhoz. lit. 95 r. [In Russian.]

SMITH, H. C. (1957). **Infectious diseases of swine.** pp. 96. Kansas City: Veterinary Medicine Publishing Co.

VICKERS, A. E. J. (Edited by). (1956). **Modern methods of microscopy. A series of papers reprinted from 'Research'.** pp. iii+114. London: Butterworths Scientific Publications. 15s.

VILLEE, C. A. (Edited by). (1957). **Gestation. Transactions of the third conference, March 6, 7, and 9, 1956. Princeton, N.J.** [Sponsored by the Josiah Macy, Jr. Foundation.] pp. 253. New York: Josiah Macy, Jr. Foundation. $4.75.

—. (1956). **Diagnostic procedures for virus and rickettsial diseases.** pp. xv+578. New York: American Public Health Association. 2nd Edit. $7.50.

The Editor will be glad to receive publications relating to Veterinary Science and cognate subjects in order that they may be dealt with in the *Veterinary Bulletin*.

Reports of Departments, Special Reports, reprints, etc., etc., should be sent as soon as they are issued.

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The closing date for the receipt of applications, in Australia and London, is **24th August, 1957.**

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